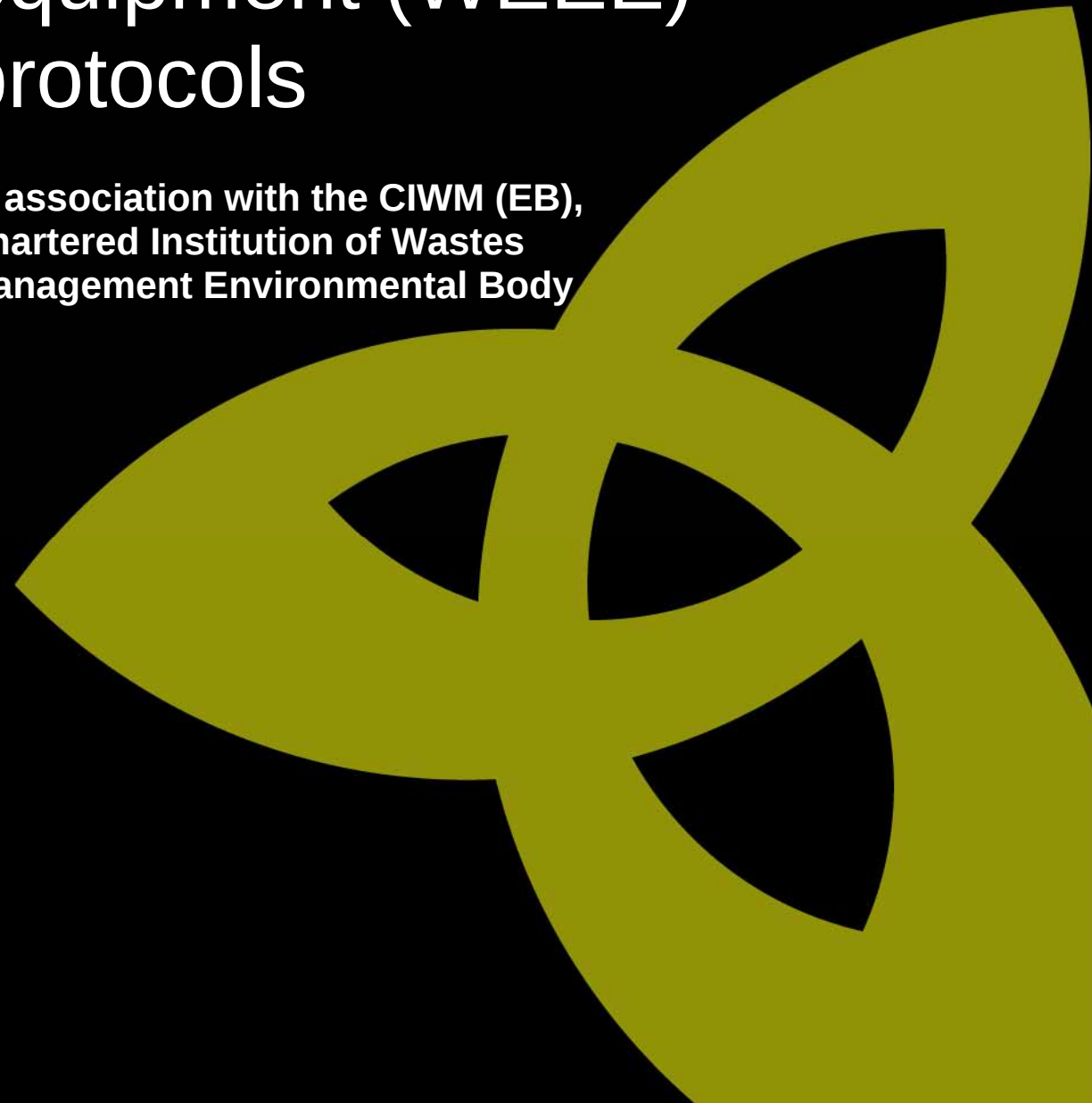


Trial to establish waste electrical and electronic equipment (WEEE) protocols

In association with the CIWM (EB),
Chartered Institution of Wastes
Management Environmental Body



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Appendix 2 Processing Data for Mixed WEEE Categories

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1.0 EXECUTIVE SUMMARY

The project objectives were to derive Protocols to assist in the recording and reporting of WEEE recycling and recovery in the UK and for those materials exported overseas. To achieve this, the category make up of small mixed WEEE, arising from Civic Amenity sites, was determined. A compositional profile for each category was measured and, using both of these data sets, an average mixed WEEE composition was derived.

The trial involved the hand sorting of 125 tonnes, made up from 16,401 individual items, of small mixed WEEE (SMW). The items were segregated into 10 categories, provided in the WEEE Regulations, and counted and weighed.

Each segregated SMW category was homogenised by processing through a WEEE plant or a shredder/fragmentiser. Samples of the mixed output streams from these processes were handsorted to characterise and determine their compositions.

The Category Protocol values of SMW were:

-  10.3% - Category 1
-  19.9% - Category 2
-  22.7% - Category 3
-  22.2% - Category 4
-  2.0% - Category 5 – This household source is to be included as Non -WEEE
-  10% - Category 6
-  0.3% - Category 7
-  0.7% - Category 9
-  12% - Non-WEEE and unallocated

The Composition Protocol values for SMW were:

-  47.1% - Metals
-  30.8% - Plastic
-  2.1% - Printed Circuit Board
-  6.1% - Other materials
-  14% - Non-WEEE and unallocated

The protocols help simplify the recording and processing requirements of the AATF. Different recycling recovery targets have been set for different categories. The protocols allow the calculation of a weighted average for the relative recycling rates of each category present within SMW. Without the protocol, segregation of SMW materials prior to processing would be required to provide the same information breakdown.

2.0 INTRODUCTION

The EU Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC), implemented into UK legislation by the Waste Electrical and Electronic Equipment Regulations 2006, requires producers to ensure separately collected WEEE is treated appropriately and recycled to target levels.

The Directive places different recycling targets on different categories of WEEE. In order to be able to calculate the achievement of these targets, it is firstly essential to know the amount of WEEE in each category for a typical mixed WEEE load (category breakdown). Secondly, it is necessary to know the typical proportions of metal, plastic and other material within each category (category composition).

The average category breakdown of mixed WEEE was obtained from hand sorting 125 tonnes of mixed WEEE into the different categories. The mixed WEEE was derived from a number of civic amenity (CA) sites.

During the hand sorting trial, enough items from categories 2, 3, 4 and 6 was collected to process through a purpose-built WEEE processing plant. The separate processing of these items provided the proportions of metal, plastic and other materials within each category. The separate proportion of printed circuit board (PCB) within each category is also provided.

A sample consisting of small category 1 items and a sample consisting of separately collected large white goods were each processed through a fragmentiser plant to establish their material composition. The composition of fridges was calculated from data provided by 5 fridge processors and the composition of cathode ray tubes (CRTs) relating to both category 3 (computer monitors) and category 4 (televisions) was obtained from hand dismantling trials. For the remaining categories within the mixed WEEE, where there was insufficient material to process, the category composition was estimated.

The following protocols, which form the main objectives of the project, were developed using the information gained from the trials:

-  a protocol based on the proportions of WEEE categories and non-WEEE, within mixed WEEE loads (category protocol, CP),
-  protocols based on the proportions of metals, plastics and other materials within each WEEE category present within a typical mixed WEEE load (categories 1, 2, 3, 4, 5, 6, 7 and 9). Separate protocols are provided for large white goods, fridges, CRTs (category 3) and CRTs (category 4).
-  a protocol for a typical load of mixed WEEE based on the proportion of metals, plastics, other materials and PCB within each category (Small Mixed WEEE Protocol, SMW)

The purpose of the protocols is to reduce the need for excessive measurement and reporting by Approved Authorised Treatment Facilities (AATFs) when demonstrating how much WEEE has been received by reprocessors or exporters, whether received as an individual category or as a co-mingled load with other wastes such as cars or packaging.

3.0 ACKNOWLEDGEMENTS

The research work within this project has been undertaken with the assistance of several companies in the recycling industry, without whom the work would not have been possible to complete.

-  M Baker Recycling Ltd.
-  European Metals Recycling Ltd.
-  S Norton and Co Ltd.
-  Shore Recycling Ltd.
-  Sims Group plc.
-  Wincanton Logistics plc.

4.0 WEEE CATEGORIES

The Waste from Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) introduces, amongst other things, a category listing of the various types of WEEE. These groupings have been used during this trial to help segregate the items and derive proportion estimates of the type and composition of the categories as they arise in small mixed WEEE. A list and brief summary of the categories is provided below.

4.1 Category 1

This group contains large items such as refrigerators, freezers, fridge freezers, washing machines, dishwashers, dryers and cookers. It also includes smaller items such as microwave ovens, heaters, radiators, fans and air conditioning units. During this trial most CA sites included occasional large category 1 items. All of the category 1 items were segregated with the large items weighed separately and removed whilst the smaller items were accumulated for processing.

4.1.1 Refrigeration Units

Refrigeration appliances were not included within the trials. A data request was used to compile a profile of the composition of a typical unit. A total of 5 processing sites provided their data to be included within the trial. Although the information is available on public register, the data provided here has not been directly attributed to any company.

4.1.2 Large White Goods

These items were also processed but as a separate waste stream. A sample predominately made from washing machines was processed to homogenise and produce a compositional estimate.

4.2 Category 2 – Small Household Appliances

This category is composed of items such as vacuum cleaners, irons, toasters, fryers, kettles, scales and other domestic items such as hair care and timers.

4.3 Category 3 – IT and Telecoms Equipment

Items including computers, mouse, keyboards printers, copiers, faxes, telephones and CRT and flat screen monitors fall within this grouping.

CRT monitors were not included within the SMW. They are typically segregated and stored separately at the CA sites prior to the material arriving at the sorting point. Therefore; these items were treated as a separate stream for the purposes of the trials and did not appear within the small mixed WEEE.

4.4 Category 4 – Consumer Equipment

Items including TVs, radios, DVD players, VCRs, CD players, Hi-Fi items, speakers, amplifiers and musical instruments fall within this group.

The CRT TVs were also segregated, as with the category 3 CRTs, at the CA site and not included in the waste stream. These items were also treated as a separate stream for the purposes of the trials and did not appear within the small mixed WEEE.

4.5 Category 5 – Lighting

The category includes lighting units for both fluorescent bulbs and element based light sources. None of the units in the trial had the actual bulb or tube in place. This category excludes household luminaries. Because the source of the materials for the sample was CA sites (a household source of material) they are to be counted within the non-WEEE fraction of the trial.

4.6 Category 6 – Electrical and Electronic Tools

Drills, saws, equipment for turning, milling, sanding, grinding, cutting, shearing etc, sewing machines, lawnmowers and strimmers fall within this category.

4.7 Category 7 – Toys and leisure

These items include exercise equipment through to computer game consoles. Only a small quantity of these items was present within the sample collected and sorted.

4.8 Category 9 – Monitoring Equipment

Very few of these items appeared in the sample, generally limited to equipment such as flow gauges and measuring equipment.

4.9 Categories 8 and 10

These categories, comprising medical equipment and dispensing equipment, were not detected in the sample of SMW.

5.0 METHODOLOGY

5.1 Mixed WEEE

5.1.1 Accumulation of Mixed WEEE

Mixed loads of waste electronic and electrical equipment (WEEE) were secured from the participating civic amenity (CA) sites over the period of the trial. Due to the small size of the loads produced at the CA sites (typically 2 to 3 tonnes each), they were first transported to a central location where they were stored and combined with other loads from the same CA site. Once sufficient mixed WEEE had been accumulated (approximately 10 tonnes), the material was transported by bulk carrier to the sorting depot in Blaydon, near Newcastle-upon-Tyne.

At each stage the loading was undertaken to ensure a loose fill of the containers, skips and bulk carriers. None of the loads were compacted to increase the fill rate, therefore keeping the break up and entanglement of the materials to a minimum. This was a departure from standard practice at some of the collection sites where it is typical to use heavy compaction to densify the materials for more efficient transportation.

At the beginning of the trial, each of the CA sites was instructed to continue collecting small mixed WEEE (SMW) in their usual manner (i.e. without Cathode Ray Tube (CRT) televisions, PC monitors and without fridges or large Category 1 items). This was to ensure that the data collected during the trial represented the current pattern of WEEE collection in the UK.

The CA sites and corresponding locations where the material was accumulated were:

<i>CA Site</i>	<i>Accumulated at</i>
Coventry	Kingsbury
Footscray and Crayford	Erith
Blackburn	Blackburn
Wakefield and Doncaster	Manchester

The rate of WEEE accumulation varied both between CA sites and over time. As a result, the generation of WEEE items was not constant throughout the trial period.

5.1.2 Handsorting of Small Mixed WEEE (SMW)

The hand sorting of the SMW material took place at Blaydon, near Newcastle-upon-Tyne, in close proximity to both the WEEE processing site at Billingham and the Hartlepool site used for the small white goods shredding trial. A large dedicated building with 6 storage bays and a large open floor area was chosen to house the sorting programme. This provided a controlled area for the tipping of bulk carriers and the sorting and storage of the items without disruptions by weather or other site operations. In addition, the sample items were controlled by good site security and supervision. The site provided access to forklifts, shovel loaders, weighing equipment and storage bins to ensure an efficient segregation and weighing operation.

The hand sorting was undertaken by a group of hired staff which were trained and overseen by experienced consultants from Mayer Environmental Ltd.

Each bulk carrier of mixed WEEE was weighed in on the weighbridge and tipped in the sorting area of the building. Each item picked from the mixed load was logged and recorded by type, and placed into the appropriate category bin. Once full, the category bins were weighed and then tipped into the appropriate storage bay. This process was repeated until the load had been completely sorted, recorded, and weighed off. The total weight of the sorted categories was then used to confirm the mass balance of the incoming SMW load. In total 14 bulk carrier loads (approximately 125 tonnes) of SMW arising from CA sites were handsorted.

The data relating to the mixed WEEE handsort is included in appendix 1. The data sheets present weights, items, and categories on a load by load basis.

5.1.3 Issues Relating to the Handsorting of Mixed WEEE

For the purpose of this report, material not falling within any of the WEEE Directive categories has been termed 'non-WEEE'. Non-WEEE items were common throughout the mixed WEEE loads and included for example typewriters, weaving machines, petrol lawn mowers, and other metal items, wood, fabric, cardboard and plastic. All non-WEEE material was separated, weighed and recorded as a separate non-WEEE fraction.

Many of the vacuum cleaners were found to contain a full or part full dust bag. The dust bags were typically full of dusts and other dirt which made up most of the weight of the bag. The dust bag (collector in some makes and models) was part of the vacuum cleaner the dirt/dust within would also be part of the item, when received/weighed in, albeit an unrecyclable component. Where dirt/dust was present within a hard container they were emptied. Often the hard containers were broken open during handling, spilling the contents. The dust bags were difficult to open and empty in a clean and safe way. The weight of the bags was relatively small compared to the weight of the contents, and the weight of the vacuum cleaner. Therefore, the whole bag was removed and weighed off as a separate item and was counted as non-WEEE for the purpose of the trial. It should be noted that items such as the dust bags, batteries, ink cartridges, cable etc will form part of the SMW at the point of disposal.

Although care was taken to keep the crushing of samples to a minimum, the tipping of the mixed WEEE material did result in some items breaking.

This resulted in a 'WEEE residue' which, due to time constraints, could not be allocated to a particular category at the time of the category segregation. However, representative samples of the WEEE residue were taken to perform a detailed handsort at a later date. This enabled the vast majority of the material to be identified and categorised. The category proportions obtained from the sample handsort were then used to allocate the WEEE residue, produced during the trial, back to the relevant category from each load. A proportion of the WEEE residue also consisted of non-WEEE material, which was therefore apportioned to the non-WEEE fraction. The WEEE residue also contained a small proportion of fines and broken material which could not be identified. This proportion has been termed in the trial data as 'unallocated material'.

Each category of the WEEE residue was then handsorted to determine its material composition and the proportions of metal, plastic and other material apportioned back to the appropriate category composition. The composition profile of the WEEE residue was mainly plastic. The composition data presented within the appendices is provided with the WEEE residue reallocated.

As part of the trial, loose batteries and transformers within the mixed WEEE loads were collected, weighed and recorded as separate items. Cables, including extension cables, were often found loose within the mixed WEEE loads. Where these could not be reallocated to a category, they were also removed, weighed and recorded as a separate item.

5.1.4 Processing of Mixed WEEE

Once categories were segregated from the mixed loads they were stored until sufficient material was accumulated to undertake a composition breakdown trial. The categories of largest proportions in the segregation trial were category 1, category 2, category 3, category 4 and category 6.

Category 1 items were processed through a shredder, which is discussed in more detail below. The other categories were batch processed and homogenised through a dedicated WEEE processing plant.

Once a sufficient quantity of material had been collected for processing, the following four categories were loaded into bulk carriers and transported to the Wincanton site at Billingham.

The processed category samples were:

-  Category 2 – small household appliances – 16,320kg
-  Category 3 – IT and telecommunications equipment – 17,780kg
-  Category 4 – consumer equipment – 19,200kg
-  Category 6 – electric and electronic goods – 10,280kg

The count of items processed is also recorded on the processing results sheets.

The plant used to break the items down into their constituent parts and homogenise them was a MeWa dedicated WEEE processing plant. This plant enabled the individual category samples to be batch processed and broken into their constituent parts.

The plant feeds items into a chamber with chain flails (a QZ) which breaks open and breaks apart the individual items. A primary separation then removes the ferrous metals and fines, then a hand picking belt system allows other discrete items such as batteries, cable, PCBs, large non ferrous and items of wood to be removed by hand. The materials then pass on to a granulator where they are reduced in size. Further magnetic and eddy current separation removes the ferrous and non ferrous metals from the plastic rich stream. Throughout the process the whole sample becomes well mixed and homogenised allowing representative samples of the outputs to be collected for handsorting.

The output materials were collected separately in bins and skips below the picking belts or at the end of separation conveyor belts. The bins were weighed off at the start of the trial to get tare weights. At the end of each batch process all of the bins were weighed off and the weights recorded.

Samples of the plastic rich output were taken during each category batch processing. The plastic rich samples were hand sorted to determine the relative proportions of plastic, wood, rubber, PCB and other items, if found, during the sorting process. The amount of these materials removed from the samples was weighed and the proportions used to apportion the total plastic rich output to the appropriate material type. The flow diagram below summarises the process stages and the outputs.

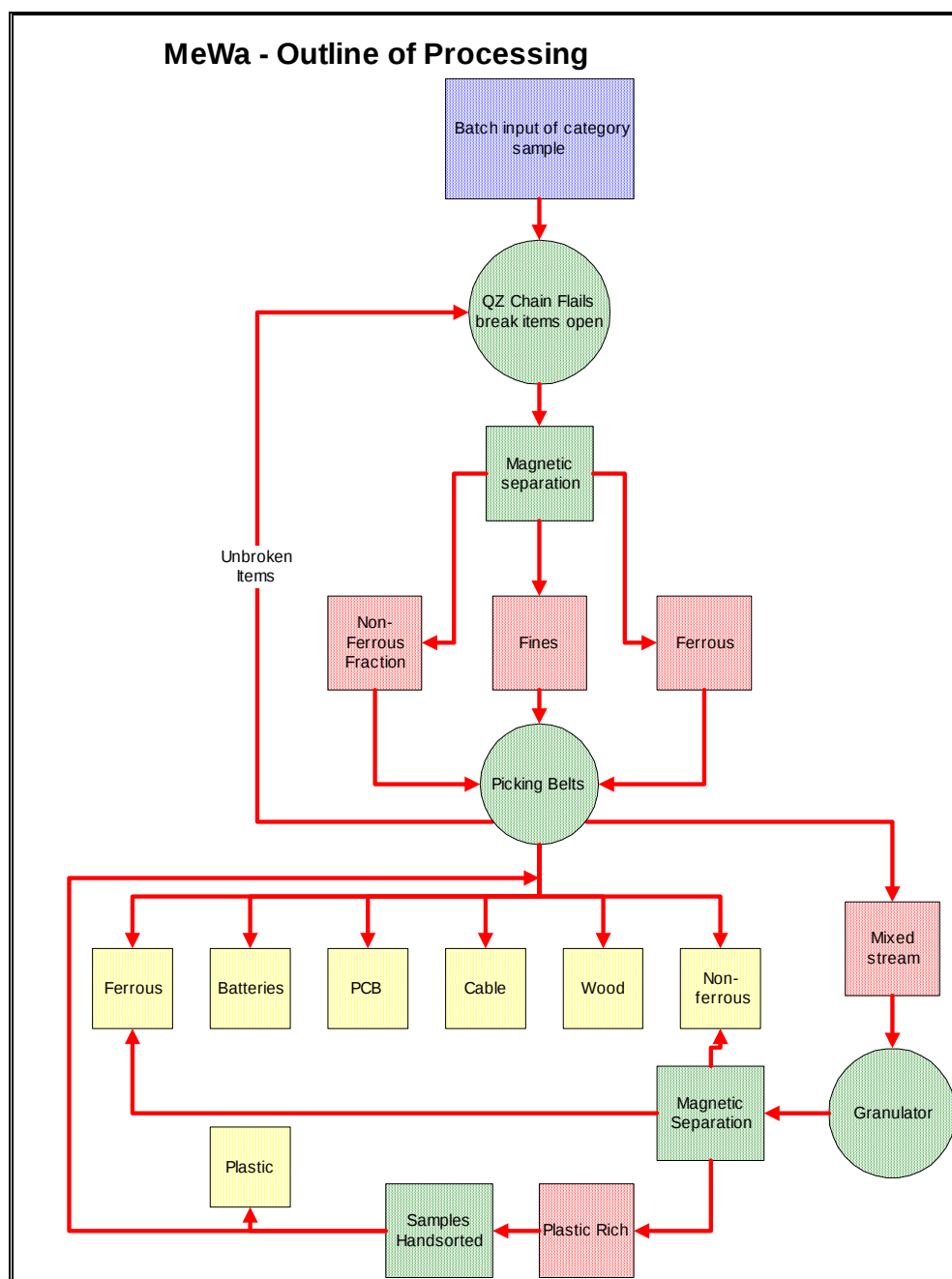


Figure 1 : MeWa process flow summary for the batch processing of Categories 2,3,4 and 6.

5.2 Category 1 Fridges

There is a requirement in the UK for fridge treatment facilities to keep detailed records of their operations. This includes recording the number and weight of units received for processing. In addition, the outputs from the processing are also required. This is to specifically confirm that the processing operation meets Ozone Depleting Substance (ODS) recovery targets. Information on the amounts of ferrous, non-ferrous, plastic, compressors and other materials is also recorded. All of this information is available from the public register and is freely available for review.

Although not all fridges fall under the ODS regulations their composition will be similar to those which do. It is also not unusual for non ODS fridges to be processed along side those containing ODS.

As there is such a large data set already available there was no need to undertake a specific trial to determine an average composition. A data search was used instead.

To gather the information several processors were contacted and asked to provide information for this report. Five processing sites responded and provided information. This data set represents about 1.4 million units processed over a processing period of 12 months.

The data provided by the processing plants is included in appendix 2.

5.3 Category 1 Large White Goods

5.3.1 Accumulation of Large White Goods Sample

A separate sample of large category 1 items was accumulated at a shredding site in Erith for batch processing. The sample consisted of clothes dryers, cookers, dish washing machines and an estimated 85% by item type of washing machines.

A total of 109 tonnes of material was collected and processed as a sample.

5.3.2 Processing of Large White Goods Sample

The sample of large white goods was processed through a shredder or fragmentiser plant.

The fragmentation process pulverises the infeed, reducing the size of all items entering the shredder by means of a rotary hammer mill. This process reduces the metal content of the infeed material to fist sized fragments. In the case of the large white goods trial, these fragments consisted of compacted sheet metal. Following size reduction, magnets, air suction and cyclones 'purify' the product by creating separate production streams.

The materials are generally segregated as follows. Ferrous metals are removed by magnets and light materials are removed by air suction. The air cyclones draw off the light materials including the dusts, fabrics, paper and foams. The larger sized materials from the cyclones are deposited as 'frag dirt' waste. The remaining heavy material is termed shredder non-ferrous (SNF) and contains non-ferrous metals, rubber plastic and stone. The trial produced 3 production streams; ferrous, shredder non-ferrous (SNF) and fragmentiser dirt (frag dirt). Representative samples were taken of the SNF and frag dirt.

The data from the large white goods trial is included in appendix 2.

5.3.3 Handsorting of Production Streams from Large White Goods Trial

Two of the three production streams, the SNF and frag dirt, required further sorting to determine their composition.

The SNF and frag dirt samples were left out to dry for a period of one week to reduce water content. The dry samples were then sieved to remove the less than 2mm fraction (fines), which consisted predominantly of concrete and fine glass fragments.

The remaining SNF and frag dirt samples were handsorted to establish the weight of individual materials within them, including rubber, plastic, stone, wood and printed circuit board (PCB). The material weights obtained from this sample handsort were used to reallocate the SNF and frag dirt produced during the trial into 'metal', 'plastic', 'other' and 'PCB' fractions. The fines were allocated to the 'other' fraction.

5.4 Category 1 Small White Goods

5.4.1 Accumulation of Small White Goods Sample

The category 1 material separated during the handsort at Blaydon was transported to Hartlepool for processing through a shredder or fragmentiser plant.

Any large white goods which had already been included in the Erith shredding trial were removed before transporting to Hartlepool. These items included a number of washing machines, clothes dryers and dish washers. A small number of fridges and freezers which had arrived at Blaydon within the mixed WEEE were also removed from the category 1 material for alternative disposal. The composition of the remaining sample included microwaves, electric heating appliances, electric fans and conditioning equipment.

A total of 9.20 tonnes of small white goods were transported to Hartlepool for processing.

5.4.2 Processing of Small White Goods Sample

The sample of small white goods was processed through a shredder/fragmentiser plant using a similar process to that described above.

The fragmentation process pulverises the infeed, reducing the size of all items entering the shredder by means of a rotary hammer mill. This process reduces the metal content of the infeed material to fist sized fragments. Following size reduction, magnets, air suction and cyclones 'purify' the product by separating wastes from the metals into separate production streams.

The materials are generally segregated as follows. Ferrous metals are removed by magnets and light materials are removed by air suction. The air cyclones draw off the light materials including the dusts, fabrics, paper and foams. The larger sized materials from the cyclones are deposited as 'frag dirt' waste.

The remaining heavy material is termed shredder non-ferrous (SNF) and contains non ferrous metals, rubber plastic and stone. The trial produced 3 production streams; ferrous, shredder non-ferrous (SNF) and fragmentiser dirt (frag dirt). Samples were taken of the SNF and frag dirt.

The data from the small white goods trial is included in appendix 2.

5.4.3 Handsorting of Production Streams from Small White Goods Trial

Two of the three production streams, the SNF and frag dirt, required further sorting to determine their composition.

The SNF and frag dirt samples were left out to dry for a period of one week to reduce water content. The dry samples were then sieved to remove the less than 2mm fraction (fines), which consisted of predominantly concrete and fine glass fragments. The remaining SNF and frag dirt samples were handsorted to establish the weight of individual materials within them, including rubber, plastic, stone, wood and printed circuit board (PCB). The material weights obtained from the sample handsort were used to reallocate the SNF and frag dirt produced during the trial into metal, plastic, other and PCB (printed circuit board) fractions. The fines were allocated to the 'other' fraction.

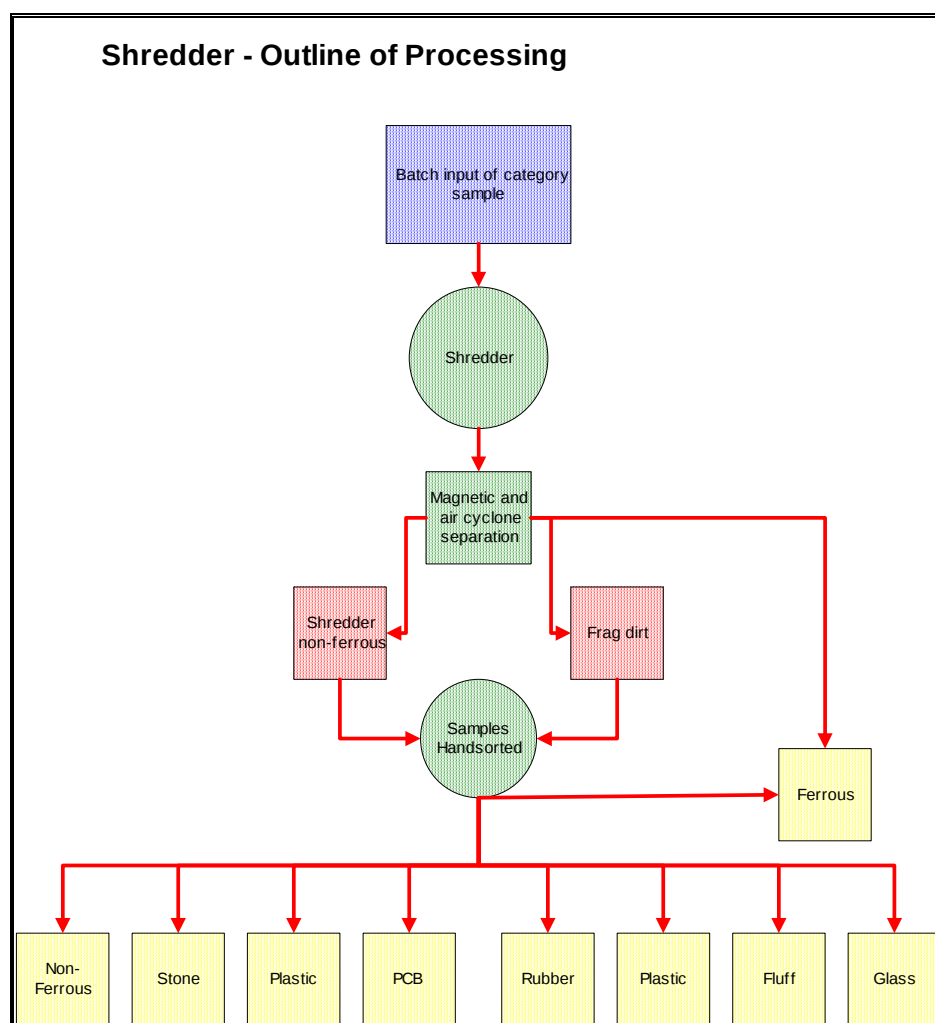


Figure 2 : Shredder process flow summary for the batch processing of Category 1

5.5 Cathode Ray Tubes – CRTs from Category 3 and 4

Cathode Ray Tubes (CRTs) displays are typically segregated from other waste and WEEE arising at the CA site. Due to handling issues and potentially hazardous nature of these items a hand dismantling exercise was undertaken. To ensure a large sample could be secured, sorted and then processed in an appropriate way a commercial CRT treatment company was used. The trial was undertaken on 17th October 2006 and was witnessed and supervised throughout by a Mayer Environmental consultant.

The samples consisted of 100 IT monitors containing CRTs from category 3 (IT and telecommunication equipment), and 100 Televisions containing CRT from category 4 (Consumer Equipment). Each separate sample of 100 items was weighed as the input. Following the processing, constituent parts were weighed as a check on the mass balance. The category 3 sample was processed first.

The dismantling process followed a conveyor system, with stations which performed a specific task. For example; unscrewing and removal of the outer case, removal of PCBs (printed circuit boards and metal base plates), removal of the yolk, removal of degaussing wire and steel strapping. The final stage involved the splitting and separation of the funnel glass from the panel glass. In this case a wire was placed around the unit, between the funnel and the panel, and tightened. The wire was then heated by an electric current, and then rapidly cooled to induce thermal shock in the glass, breaking the unit and separating the funnel from the panel. The funnel glass was then removed and placed in to a dedicated bin. The shadow mask was removed and placed for compaction and the panel glass vacuum cleaned, to remove the internal phosphor coating and placed into a dedicated bin.

At the end of the processing the materials were weighed in their separated fractions and recorded. Some items for example the yolks consisted of metals, plastic and other materials. Samples of these items were taken, dismantled in to their constituent parts and the metal, plastic and other materials weighed. The relative proportions were then reallocated to the appropriate material fraction for the sample as a whole.

6.0 RESULTS

The results of the hand sort segregation and the category compositional investigation are presented below. The assumptions made during the process are also discussed and where required the rationale for the decisions are also provided. The proposed protocol values are also presented.

6.1 Mixed WEEE

The handsort data is provided in appendix 1. It is presented over several pages with summary sheets. This is a record of each load of material supplied, by weight of category and number of individual items segregated. There are then four summary sheets grouping individual site data together, including the large white goods and a second excluding the large white goods. There are then three final summaries of the whole data set. The three final summaries display the data firstly including the large white goods, secondly excluding the large white goods, to ensure the sample is representative of Small Mixed WEEE (SMW), and the final summary which has the batteries, cables, transformers and other materials placed within the unallocated fraction. It is this final summary which is used to derive the SMW Category Protocol.

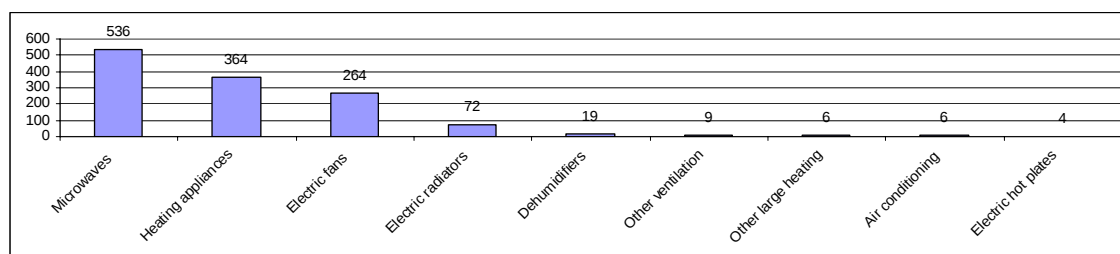
The mixed WEEE segregation work demonstrated that the distribution of the materials arising from each site was broadly similar. Occasional large white items were found within the loads and these were pulled out and weighed off. These items are not included within the final Category Protocol or compositional determination for SMW. It is expected that the large white goods will be collected as a separate stream.

Items such as the batteries were included within the category segregation; however, the total battery weight collected from the handsort of the SMW amounts to a total of 95kg. This is lower than the battery weight presented in the category summary sheets (166kg) as this heavier weight actually included items such as transformers. This makes little difference to the overall Category Protocol as both of these items were placed together in the unallocated portion.

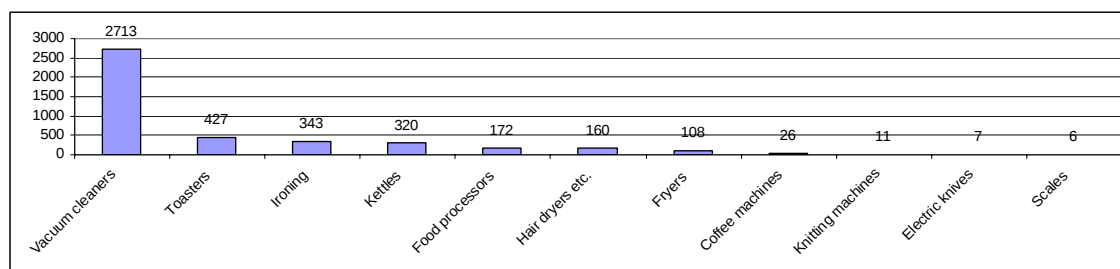
6.1.1 Item Count

Based upon the 125 tonne sample of SMW, the individual number of items segregated and counted was 16,401. This produces an average weight of about 7.6 kg per item. The graphs included below outline the item count for the total small mixed WEEE sample broken down by category.

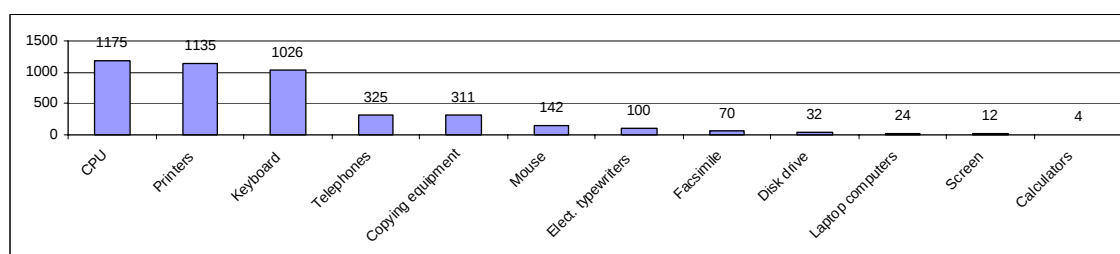
Category 1 – Small Category 1 items only



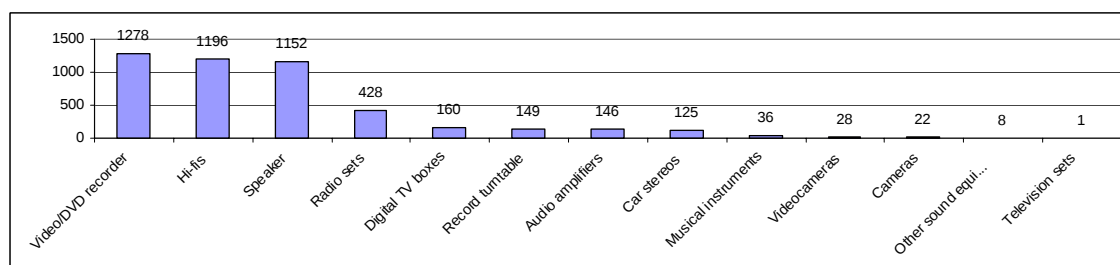
Category 2 – Small Household Appliances



Category 3 – IT and Telecommunications



Category 4 – Consumer equipment



Category 6 – Electrical and electronic tools

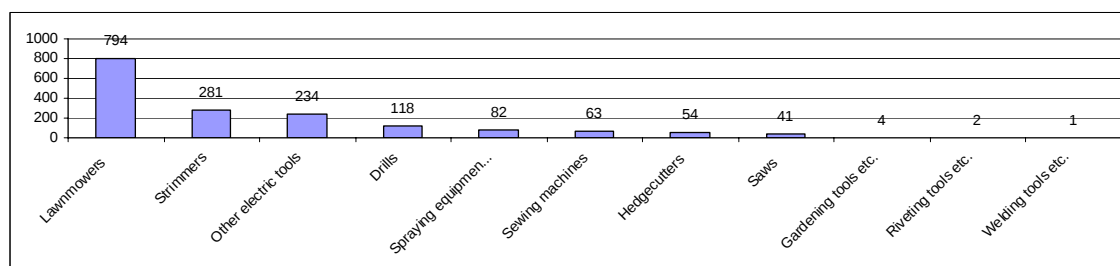


Figure 4 : Item count by Category

6.1.2 Category Protocol

When the materials were segregated in to their designated categories on a site by site basis the break down (on a weight percent basis) shows some variation in composition across the UK. The breakdown of the categories is provided on the map appended below. The ranges of the values provided demonstrate a broadly similar category distribution across the four locations. Some notable differences, for example the small category 1 items in mixed WEEE loads collected out of the Blackburn is up to 20% more than in the mixed WEEE collected in the Wakefield & Doncaster area (not including the large white goods). Category 2 items from Wakefield Doncaster also represent a slightly larger proportion than in the other sites. The non-WEEE unallocated materials are also present in relatively similar proportions across the four sites. The smallest non-WEEE/unallocated fraction was present in the Wakefield Doncaster sample.

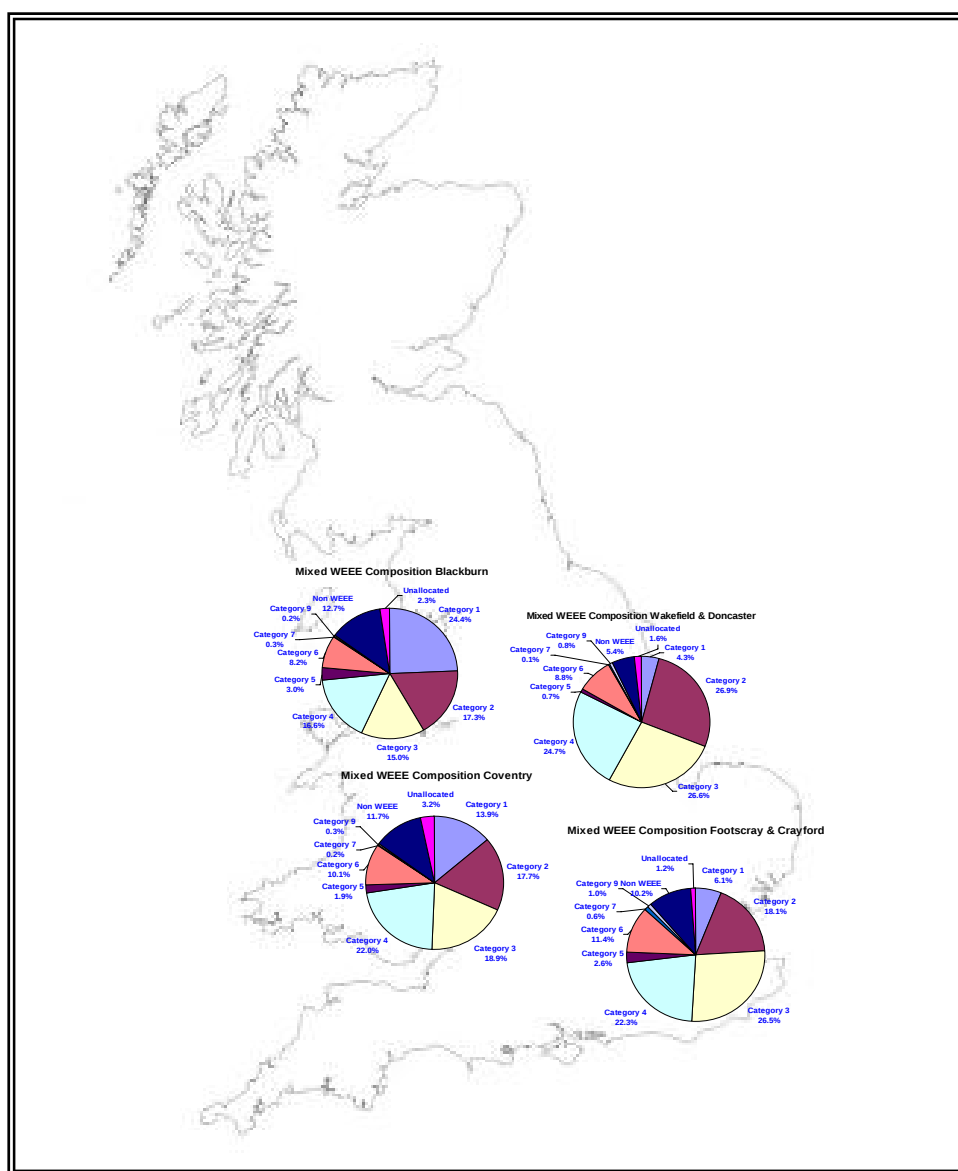


Figure 5 : The distribution and segregation values for SMW at four sampling locations.

The data presented below demonstrate the segregation values averaged over the whole sample of 125 tonnes (four sites). These represent the average values for the 125 tonnes of segregated small mixed items, including the reallocation of the WEEE residue. These values are proposed for use as the UK protocol for the make up of SMW collected from Civic Amenity sites.

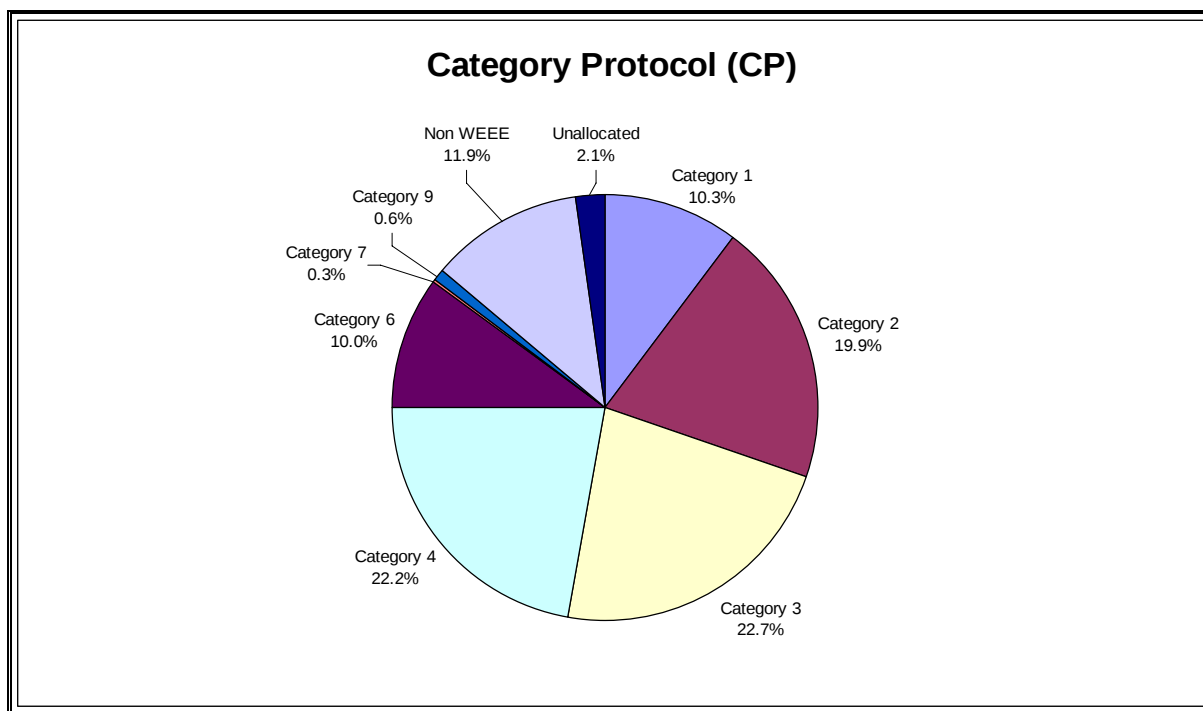


Figure 6 : Category Protocol composition

The suggested protocol values for collected SMW include a 14% non-WEEE and unallocated fraction. For the examples of protocol use the unallocated and non-WEEE fraction are grouped together as not requiring evidence. It should be noted that the 2% category 5 lighting equipment, which was sourced from households via the CA sites, also falls within the non-WEEE fraction making up to 14% non-WEEE.

6.2 Category Composition for Small Mixed WEEE

The category compositions and the detailed compositional break down of these items are provided within appendix 2. In respect of the suggested protocol the data required relates to the metal, plastic, and other material make up of the categories. The total weight of the items processed and the actual item count for the processed materials is also provided within appendix 2.

When compiling the category composition several assumptions about the items were made. Items including batteries, cable, capacitors, conveyor dust, rubber, wood, card board, glass etc were counted within the 'other materials' fractions. Printed Circuit Boards (PCBs) were counted but added as an additional item on the composition list. Items such as motors were assumed to be all metal, although a ferrous/non-ferrous break down of these items was not provided.

The results presented are also not related to a recovery performance for the equipment (shredder or WEEE Plant) used to homogenise and break up the samples.

Where mixed material streams were produced as an output from these processes representative samples were taken and handsorted to determine their actual composition. In addition, no pre-treatment of the sample material was undertaken prior to their processing and homogenisation.

6.2.1 Category 1 Small Household Appliances

This is based upon the homogenisation shred and hand sort. This sub-category was limited to items in category 1 which are not large white goods and fridges, and which are likely to appear within the small Mixed WEEE bins at a CA site. The majority of this sample was composed of metal with a value of just over 80%.

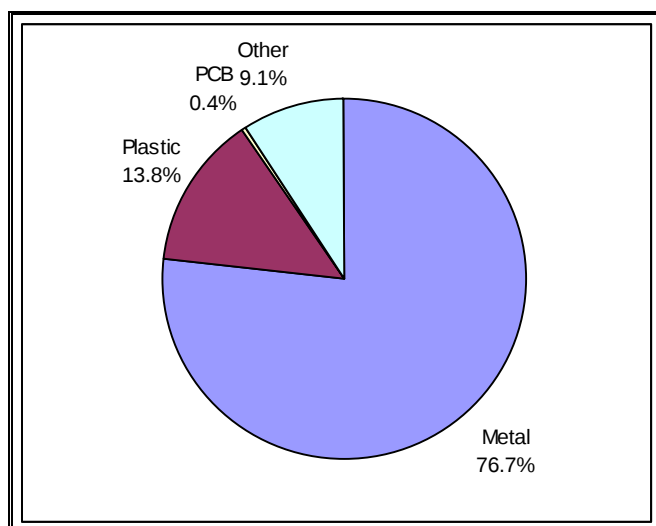


Figure 7 : Category 1 – Small White Goods

6.2.2 Category 2 Small Household Appliances

This category was dominated by the presence of vacuum cleaners and the plastic content of the breakdown reflects this. In addition, it is the plastic components which are most likely to be damaged by the handling of the samples during collection and tipping. The plastic rich residue fraction allocated to this category again reflects this plastic content. A significant proportion of the metal in this fraction came from the motors within the cleaners.

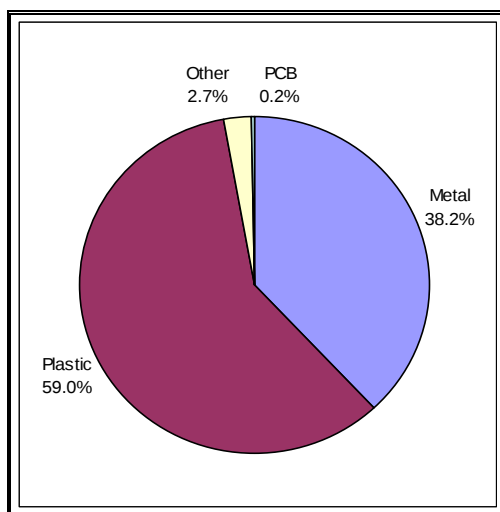


Figure 8 : Category 2 –Small Household Appliances

6.2.3 Category 3 IT and Telecommunications Equipment

The dominance of PCs in this category sample added to the metallic content. The majority of the PCs in the sample were metal cased and contained a metal chassis. Other metallic components were found in, for example, the printer spindles. Most of the items had either plastic panels, or in the case of a majority of printers, plastic cases.

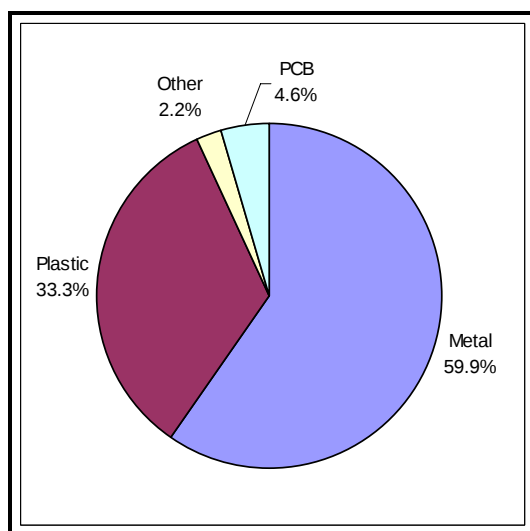


Figure 9 : Category 3 – IT and Telecommunications Equipment

A small number of Category 3 CRTs (computer monitors) were found in the mixed WEEE loads from CA sites. However, these were separated and not processed as part of the Category 3 material.

6.2.4 Category 4 Consumer Equipment

A significant fraction within this category was the proportion of wood and chipboard present. Many of the speakers, Hi Fi units and stereos were constructed from wooden or chipboard cases. This resulted in the largest of the 'other material' fraction of the small mixed WEEE categories.

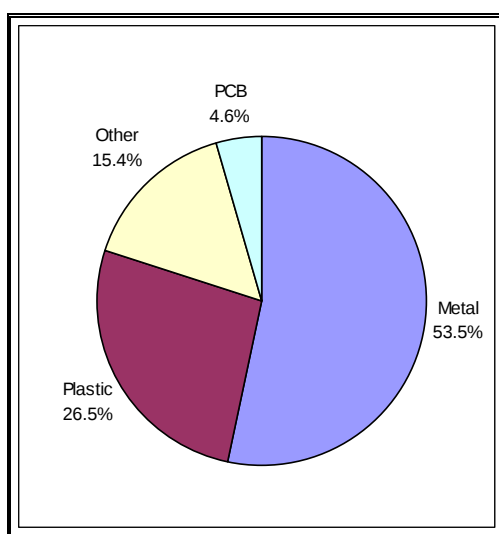


Figure 10 : Category 4 – Consumer Equipment

A small number of Category 4 CRTs (televisions) were found in the mixed WEEE loads from CA sites. However, these were separated and not processed as part of the Category 3 material.

6.2.5 Category 6 – Electrical and Electronic Tools

This fraction was dominated by lawnmowers and garden strimmers. The large proportion of metals within this fraction is dominated by the motors. The resulting composition was also notable by the absence of PCB.

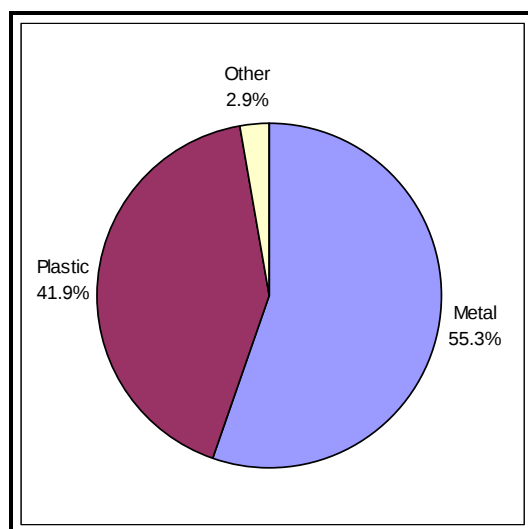


Figure 11 : Category 6 – Electrical and Electronic Tools

6.2.6 Categories 5, 7 and 9

Categories 5, 7 and 9 were not present within the trial in sufficient volume to enable an adequate homogenisation and processing trial to be undertaken. Small volumes of sample when processed through a plant to homogenise and break them up can result in a loss of material. This processing loss, whilst not significant for large samples or commercial processing, may represent a significant proportion of the whole sample and enough to invalidate the processing data. In addition, their overall significance in the small mixed WEEE category protocol as a whole was small with a sum contribution of only 3.5% of the whole. For this reason the items segregated during the trial were examined and an estimated weight percentage of the materials were made. These estimated composition breakdowns are provided within the appendices. As with the other categories a proportion of the WEEE residue was also allocated to them.

Category 5 items from household sources are excluded from the definition of WEEE. Whilst these materials were collected, segregated and reported, they were collected from a CA site and therefore from a household/domestic source. Therefore, they do not form part of the SMW calculation and are reported within the non-WEEE fraction.

6.3 Small Mixed WEEE Composition Protocol

The overall composition of small mixed WEEE (SMW) can be calculated from the data provided so far. The Category Protocol tells us what the relative proportions of the individual categories are within SMW. The Category Composition Protocols tell us what the metal, plastic and other material breakdown is of each of those categories.

It is therefore a relatively straight forward calculation, based upon this information, to determine what the proportions of metals, plastic and other materials will be in SMW.

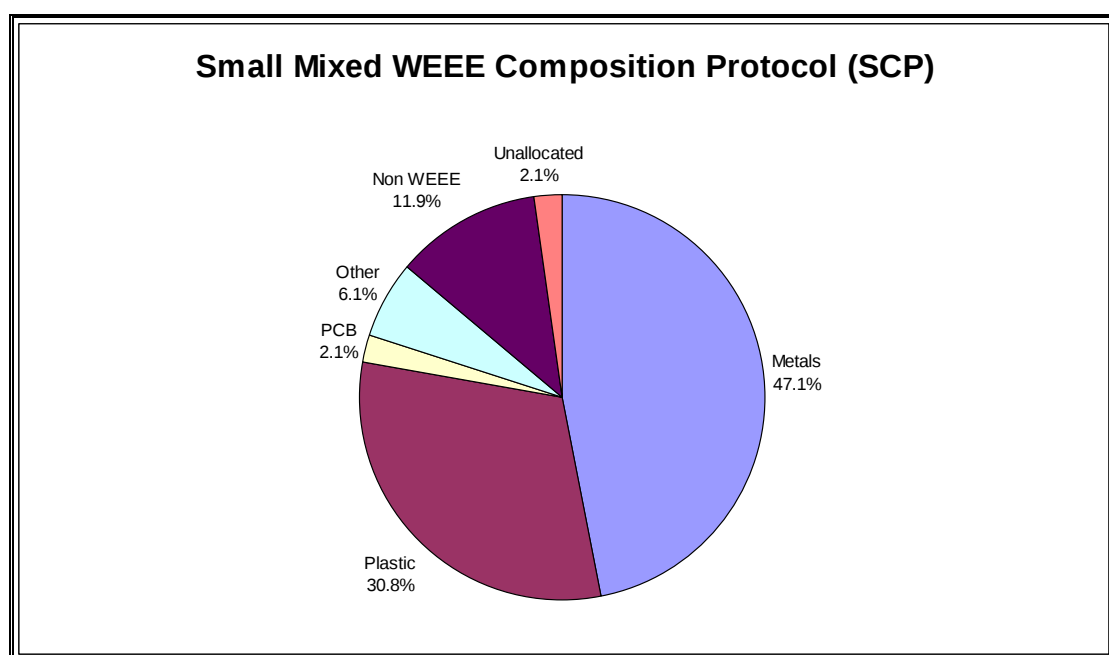


Figure 12 : SMW Composition Protocol

Using the data from the suggested Category Protocol and the Category Composition Protocols the overall small mixed WEEE composition is calculated to be 47.1% Metals, 30.8% Plastic, 2.1% PCB and 6.1% other materials. The remainder is composed of non-WEEE (including Category 5 household luminaries) and unallocated materials for which a composition breakdown is not provided.

This breakdown is suggested as the maximum WEEE material recovery to be claimed from the processing of small mixed WEEE. The use of this information and the other suggested protocols is discussed in section 8.

6.4 Category 1 Fridges

The category 1 fridge data was based upon a large sample of data provided by processors. On the whole the data fell within broadly similar ranges for each processor. The company names have been removed from the data set but the data breakdown by source and the overall average are provided.

The composition of the fridges is again made predominately of the metal fraction. Within the metals fraction the compressor weights have also been added. The other materials are mainly insulation foam.

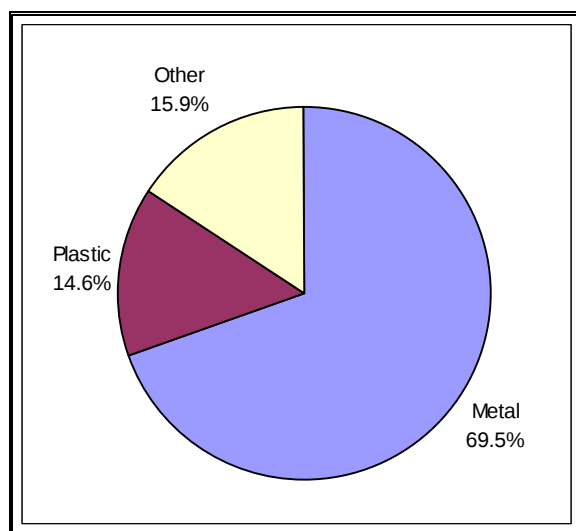


Figure 13 : Category 1 – Average Fridge Composition

6.5 Category 1 Large White Goods

The large white goods trial was dominated by the presence of Washing Machines. We believe that this has skewed the sample in respect of its composition. For this reason we have proposed an additional white goods trial with a sample containing representative distribution of other large white goods.

The large white goods displayed a predominance of metals and other materials. It is noteworthy that the concrete and glass within the washing machines appeared within the unallocated fraction of the outputs.

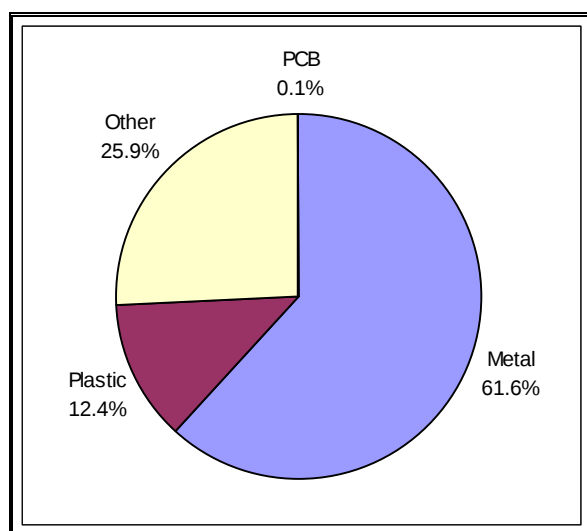
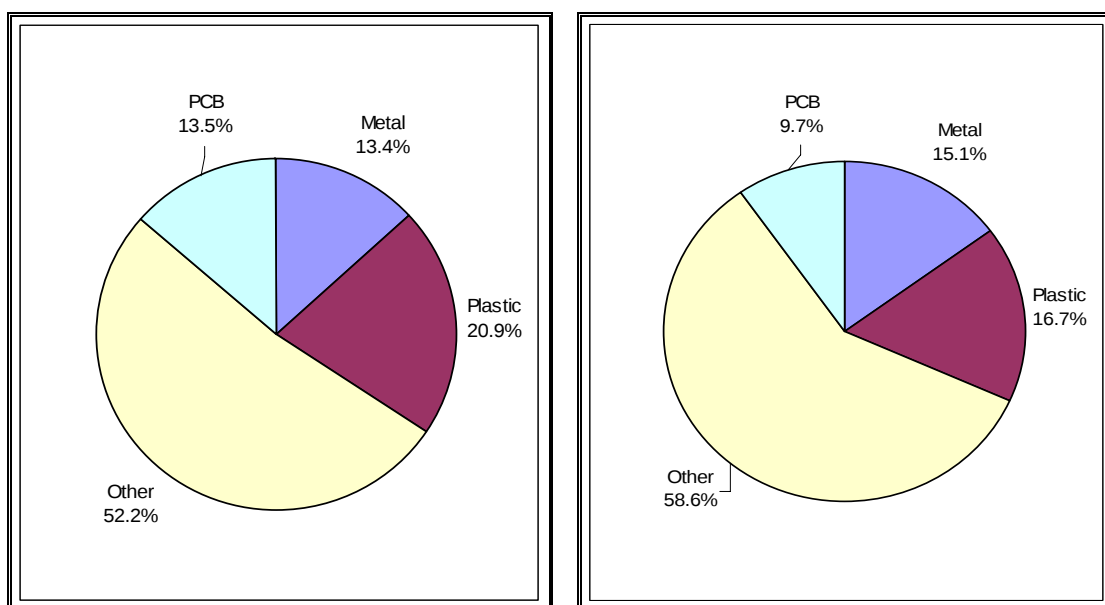


Figure 14 : Category 1 - Large white goods – Dominated by ~85% Washing Machines

6.6 Cathode Ray Tubes – CRTs from Category 3 and 5

The composition of cathode ray tube (CRT) display units was dominated by the glass content of the units. In both categories the glass constituted almost half of the overall total. Some differences between category 3 and category 4 CRTs were noted in the proportions of the other materials present. This was largely due to the predominance of plastics used within the category 3 monitor cases and the wood and chipboard used in the TV cases.



Figures 14/15 : Category 3 - IT CRT Monitors Category 4 – Consumer Equipment

6.7 Batteries

During the handsorting of SMW, and the batch processing of the categories, batteries were collected stored and weighed. For the total trial of 125 tonnes of SMW a weight of approximately 100 kg of batteries was recovered. The majority of this weight derived from larger lead acid (vehicle batteries) and smaller sealed lead acid battery cells. The condition of the batteries varied. The larger lead acid batteries were occasionally found to be damaged (broken seals or holed) at the handsort stage and during the actual processing. The smaller cell batteries were typically found whole but occasionally dented and very occasionally broken open by the processing. Some difficulty arose in identifying some of the batteries. Those wrapped as a unit, composed of several cells, would often be found broken apart and without any identifying features or markings.

During the processing of the Category 3 items the button batteries (BB) located on the circuit boards were generally dislodged and separated from the PCB. An examination of the PCB output indicated that few of the PCB had BBs still attached. The majority of the BBs reported to a ferrous fines output on the process.

A simple mass balance was undertaken on the process. It was assumed that each CPU processed would have a BB. A handsort of a representative sample, of known weight, of the ferrous fines was then undertaken. This suggested that the majority of the BBs would be separated and would report to this particular output stream. However, these BBs were not separately recovered.

Information on the batteries will be provided in more detail under cover of a separate report which is in production.

7.0 PROTOCOLS AND EVIDENCE

The use of protocols simplifies the reporting and evidence system for the requirements of the WEEE Regulations. Protocols are used in place of separate evidence gathered by individual operators. Protocols are already used in other areas of evidence based recycling operations in the UK. These include the Packaging Recovery Note (PRN or PERN) system and the End of Life Vehicle (ELV) regulations. In both cases, the requirement is to demonstrate that recycling and recovery in the UK has attained a certain minimum level. The measurement of the recycling/recovery rates is based upon nationally agreed protocol values.

Protocols also have an important role to play in the relationship between the recycling industry and the regulators. They help to reduce the cost burden on operators required to generate evidence demonstrating recycling and recovery. They allow for a 'light regulatory touch' in respect of auditing the process and the standard of proof required to demonstrate recycling and recovery; and they allow the regulators to focus on those areas of the recycling/recovery chain which will require improvement to demonstrate compliance.

The Protocol values presented in this report may not be relevant for all situations or processing operations. Operators have a choice to use the agreed protocols or to use values derived by their own investigations and measurements; providing the method used is robust and the results are agreed with the regulators. The application and use of the protocols is suggested and discussed below. Protocol use will be further explained by considering several scenarios. These scenarios explain how a protocol assists in the monitoring and data recording process. They also demonstrate how a protocol helps to measure performance.

7.1 The Evidence System

Evidence of recycling and recovery is required by an Approved Authorised Treatment Facility (AATF) to verify to producers/compliance schemes the amount of output material sent to and received by a reprocessor/exporter for recycling/recovery.

The following information is required to calculate the recycling/recovery rate and allocate this to an individual WEEE category:

-  The input to an AATF: by weight and material type
-  The composition of the input: by category and composition
-  Records of the movement of loads: the source and the end receiver after the AATF
-  Input of these materials to a reprocessor or recycler

Protocols simplify the work an AATF has to do to comply with the requirements of the WEEE directive. They are agreed with regulators, and industry, and therefore provide an equitable standard to work with. The alternative is a system whereby operators or AATFs measure and produce values of their own and have the regulator consider whether their methodology is acceptable or not. This may be time consuming, costly and there is no guarantee that they will be accepted or consistently applied.

The quantity of each WEEE category entering an AATF must be known. This is relatively simple if the WEEE equipment arriving is of a single item or single category. This is more difficult if the equipment is mixed, such as those arising at a Civic Amenity site (DCF – Designated Collection Facility). The Category Protocol (CP) provides an agreed proportion breakdown of small mixed WEEE (SMW) collected at a DCF. The CP negates the need for an AATF to sort small mixed WEEE into individual categories prior to processing.

In addition, the composition of each category in terms of metal, plastic, other materials and PCB (Printed Circuit Board) is required. This permits the calculation of an assumed overall small mixed WEEE composition in terms of metals, plastic, other materials and PCBs.

Using a protocol it is possible to calculate the recycling/recovery rate for a SMW input, and then redistribute the recycling/recovery on a category by category basis.

Assumptions have to be made in doing this, for example, each category of WEEE and each item in the mixed input is assumed to have an equal chance of being processed into its constituent materials, and that each of these materials has the same chance of segregation and subsequent recovery/recycling.

7.2 Protocols

There are several protocols suggested in this report. The first is an estimate of the relative proportions of individual WEEE categories within SMW collected at a DCF. This is referred to as the Category Protocol (CP). The second protocol, or protocols, is a group of values and provides a compositional breakdown of individual WEEE Categories. This is called the Category Composition Protocol (CCP). This is represented by a percentage proportion of metal, plastic, printed circuit board (PCB) and other material, for each category.

The final protocol is a small mixed WEEE Composition Protocol (SCP) calculated using the CP and CCP to create an estimate of the metal, plastic, other materials and PCB content of small mixed WEEE as a whole.

7.3 Application of Protocols

The composition of SMW entering an AATF is unknown unless either; it is sorted and measured by the AATF using an agreed method, it arises as a single/unmixed stream, for example from a take back scheme, or an agreed protocol is used to assume the composition. Therefore; the first proposed protocol makes the assumption that the SMW conforms to an agreed composition. The CP Protocol simplifies the process and removes the requirement for an AATF to sort and measure the input themselves.

In some situations the CP protocol may not be relevant. Consider an AATF with an input of a single WEEE category. It is unlikely to require the CP protocol because; all of the output from the AATF will be derived from the single WEEE category. The redistribution of recycling/recovery evidence across various categories is not required. The recycling /recovery rate can be related directly with the input, and it will be possible to calculate the proportion of recycling/recovery performed on this single category.

A small mixed WEEE (SMW) input to an AATF has different requirements. In this scenario the WEEE categories are mixed and will be processed together. The outputs will also be a mixture of products from different categories. To calculate the amount of recycling/recovery evidence required to prove compliance with the WEEE regulations, an AATF either sorts and measures the proportions of individual categories entering, or uses the agreed CP protocol. The amount and type of material sent to the reprocessor/exporter can be measured and confirmed by the receiver. The proportions of WEEE Categories in the SMW are known through the CP protocol, the relative compositions of each of the categories in the SMW are also known through the CCP protocols, and it is therefore possible to apportion the recycling/recovery evidence to each category within the SMW.

In addition, by using the SCP protocol (which suggests a maximum percentage of metal, plastic, other materials and PCB in SMW) it is also possible to estimate treatment/separation efficiency for the AATF.

The use and relevance of the protocols and the provision of evidence to demonstrate recycling/recovery is examined in more detail by reference to the following scenarios as worked examples.

The flow diagram below provides an outline of how WEEE material may pass through the recycling system and how and where the protocols and data recording is required.

In the outline below the DCF dispatches SMW to an AATF. The amount and type of material received by the ATF is recorded. At this point the CP Protocol provides the AATF with a make up of the SMW load received. This is also a consistent requirement for Approved Exporters, who will export materials for treatment and recycling/recovery.

The AATF then processes the WEEE equipment breaking them down into constituent parts/materials. For example metals, plastic and other materials. These segregated materials may then be sent to one of several other operations. They may be sent directly to an exporter/reprocessor, at which point the AATF will require evidence confirming that the exporter/reprocessor has received these WEEE derived materials. They may require further treatment to improve purity, and so recyclability, at another ATF (Authorised Treatment Facility). This second ATF will have to confirm receipt of the materials and then provide evidence that they were sent on to, and received by, an exporter/reprocessor so the originating AATF can secure the relevant evidence. Once the evidence is secured for the original SMW it is possible to prove that various percentages of the input metal, plastic and other materials have been exported or reprocessed. Using the protocol it is then possible to apportion the amount of metal, plastic and other materials back to the original categories within the mixed load.

A significant issue at this point is the non-WEEE fraction within the SMW. It will be for the AATF to provide evidence on the WEEE content of the input and not on the total input.

Material	Protocol	Comments / Definitions
Small Mixed WEEE (SMW)	Yes – Category and composition protocols	Protocols to enable the composition of the processed materials to be reallocated to each category
Co-mingled input	Yes – Composition protocol	Typically for large white goods entering a shredder with other non-WEEE materials. Composition of the input required to determine how much evidence will be required
Single item input	No	For example fridges. The input and output is well defined and can be easily measured and reported.
Single category input	No	The calculation of evidence required would be relatively simple based upon the input and output. The category composition protocol could be used as a sense check to confirm appropriate levels of evidence are being presented.

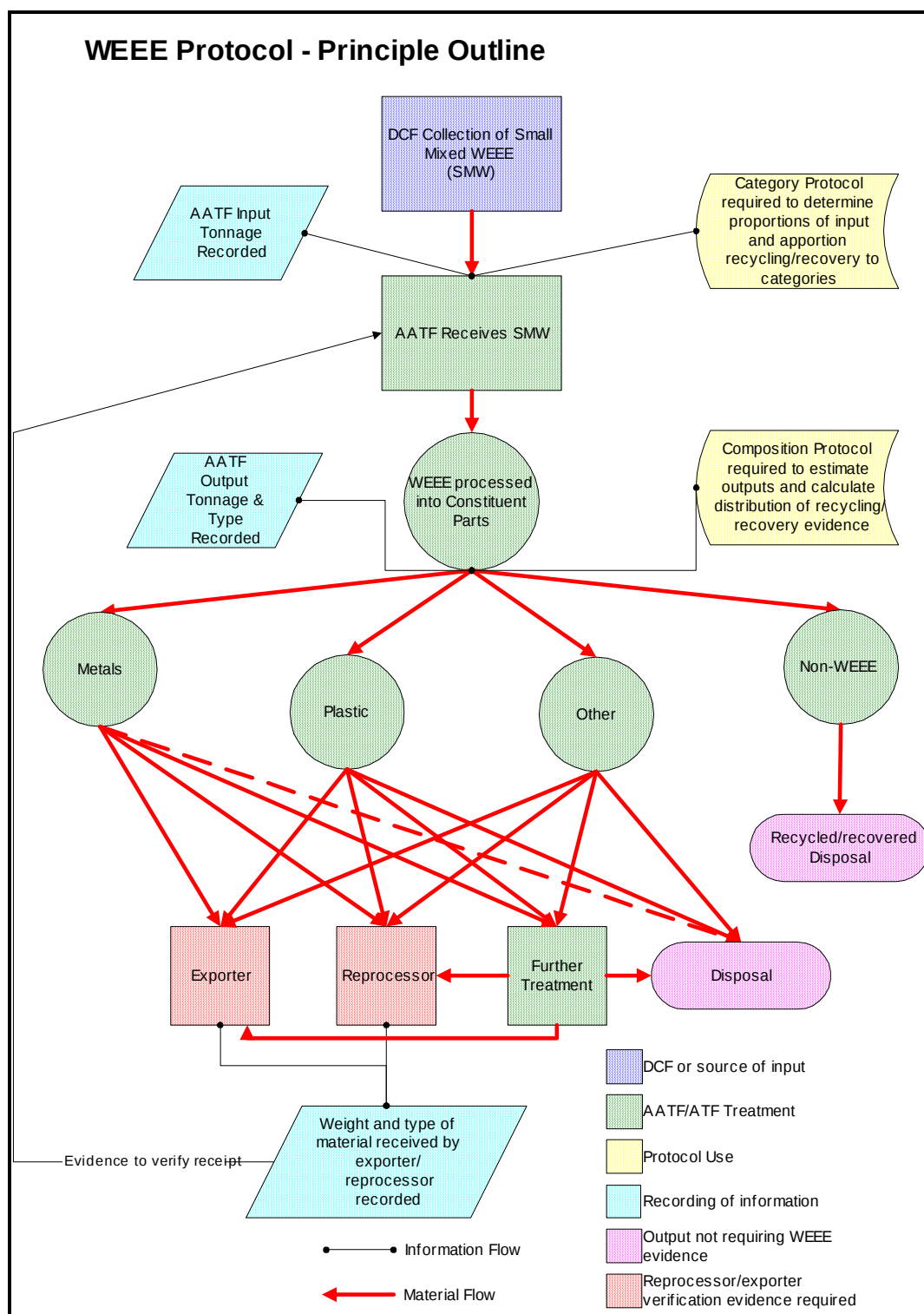


Figure 16 : Theoretical flow of materials and evidence/information during WEEE Recycling

The issues surrounding the use of the protocols will be discussed below in a series of scenarios to improve understanding of the process.

7.3.1 Scenario 1 – Small Mixed WEEE (SMW) input

An AATF receives a load of Small Mixed WEEE (SMW) from a DCF. The AATF processes the input to produce a range of output products which are then forwarded on to a reprocessor/exporter, or to another ATF for further treatment, or disposal.

The Category Protocol (CP) demonstrates that the input SMW is made up of several WEEE categories in varying proportions. In addition, a proportion of the SMW input is non-WEEE for which recycling /recovery evidence is not required.

To calculate the amount of recycling/recovery evidence required for the input, and for each category within the SMW, both the category proportions and the composition of the input has to be known. The protocol removes the need for the AATF to sort and determine the input themselves.

In this case the category protocol informs the AATF that a proportion of non-WEEE will be present (for which the AATF cannot provide evidence), and what the other relative WEEE category proportions will be.

The output from the AATF will be largely WEEE derived, with the relative proportions of metals, plastic, other materials and PCB easily measured by the AATF.

When the outputs are sent to a reprocessor/exporter, the AATF will need to secure evidence of the receipt of this material.

Any materials sent to an ATF for further treatment prior to dispatch to a reprocessor/exporter needs to be tracked so that the evidence of final receipt at the reprocessor/exporter can be secured by the original AATF.

The flow diagram below outlines the movements of materials and the recording of information.

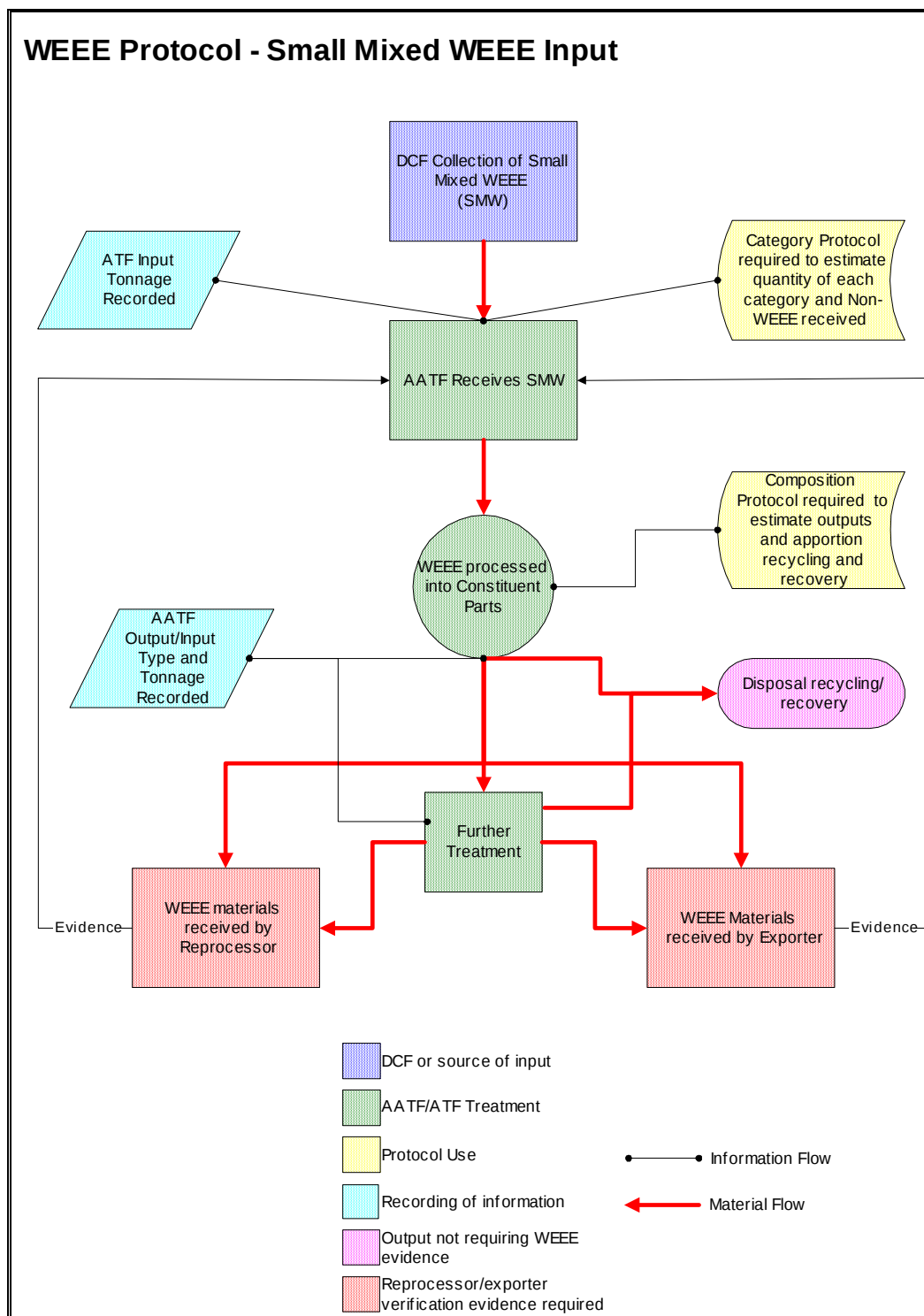


Figure 17 : Flow of material and evidence/information during SMW recycling

7.3.2 Small Mixed WEEE Protocol Worked Example

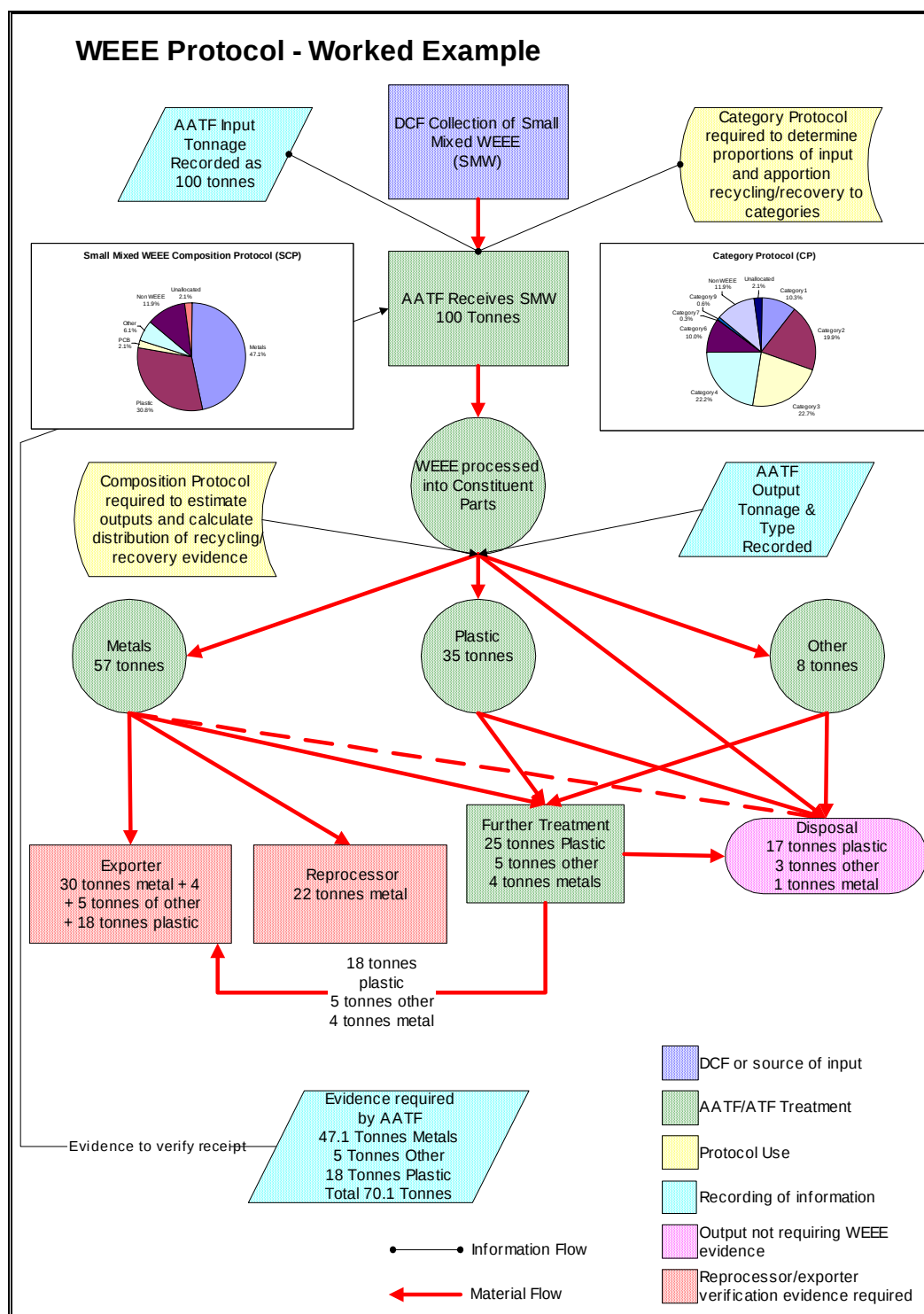


Figure 18 : Worked example

The above worked example outlines the anticipated flow of both materials and information through the WEEE recycling recovery process.

An AATF receives small mixed WEEE. The make up of this SMW (for the purpose of this example) is 57 tonnes of metals, 35 tonnes of plastic and 8 tonnes of other material. It is clear that this differs from the protocol composition due to the presence of non-WEEE. The composition of the non-WEEE is unknown, but it will influence the overall composition.

During processing the AATF separates metals, some of which are sent onto an exporter, and some on to a reprocessor. In addition, plastic, other materials and some additional metals are sent onto a second ATF for further processing. From this second ATF plastic, other materials and a further 4 tonnes of metals are sent also for export. This leaves a quantity of material which is sent for disposal. Evidence from the reprocessor/exporter on the materials sent for export or reprocessing is required by the AATF to demonstrate compliance, this evidence can only come from the reprocessor/exporter. However, the trials examining the content of SMW indicate that there will have been a non WEEE fraction in the 100 tonne input. These materials should not be counted with the WEEE recycling/recovery values. Following AATF processing it is unlikely a distinction can be made between the output of WEEE derived and non-WEEE derived metal, plastic or other materials. Therefore, the majority of the materials recycled/recovered will be WEEE derived, but a small proportion may also be non-WEEE. Whereas the composition of the non-WEEE/unallocated material is unknown, the CP protocol provides the SMW composition. To enable the removal of non-WEEE, from the calculation to determine the maximum amount of evidence claimed on the materials sent to the exporter/reprocessor the protocol caps the claim level. If the protocol is not used the recycling/recovery rates will be added to by the non-WEEE.

In this example the amount of metals export reprocessing claimed was reduced; despite the high levels of actual export/reprocessing. In doing this the assumption is that the recycled/reprocessed material claimed upon is actually WEEE derived.

In a load of mixed WEEE, there is a mix of categories with differing recycling recovery target levels. One way of getting evidence of recovery is for the facility to segregate the load in to each category, put each category through to gain a mass balance. Alternatively, they could use the composition protocol. However, as there is no way of knowing how much of the metals, plastics and other materials have come from which category, a weighted average is used to reapportion the materials. This is discussed in section 7.4.

For the purpose of the worked example:

100 tonnes of SMW yields: 57 tonnes of metals, 35 tonnes of Plastic, 8 tonnes of other materials at the AATF and ATF.

Metals:

30 tonnes are segregated and sent directly for export, 22 tonnes are sent to a reprocessor and a further 4 tonnes come via a second ATF to an exporter.

Plastic:

18 tonnes are sent to an exporter via a second ATF.

Other materials:

5 tonnes of other materials are sent to an exporter via a second ATF.

The remaining 21 tonne balance of materials is lost to disposal: 17 tonnes plastic, 3 tonnes other and 1 tonne metals.

Protocol:

The protocol determines that SMW is made up of 47.1% metals, 30.8% plastic, 8.1% other materials and 14% non WEEE. These figures therefore represent the maximum that can be claimed as WEEE derived.

In this example the evidence to be claimed is therefore 47.1 tonnes metal, 18 tonnes plastic and 5 tonnes of other materials. A total of 70.1 tonnes. This is less than the 79 tonnes actually sent on to the exporter/reprocessor in the example.

70.1 tonnes of an 86 tonnes total input (100 tonnes of SMW, less the 14 tonnes of non-WEEE) is equal to 81.5% of the WEEE has been sent to an exporter/reprocessor. In this process an assumption is made that the exported/reprocessed material claimed upon is actually all WEEE derived.

7.3.3 Scenario 2 – Co-mingled input to an AATF

WEEE is delivered to an AATF along with other non-WEEE items. These items are processed at the same time as non-WEEE items. This scenario is most likely to occur at an AATF Shredder/Fragmentiser site processing Large White Goods (LWG).

The LWG would be fed into the plant at the same time as other non-WEEE light iron. In this situation a protocol to confirm the make up of the LWG is required. It is proposed to investigate this protocol further. The data provided to date on the materials processed in the Category 1 Large White Goods displayed a bias to washing machines. It is therefore proposed that the large white goods be investigated in more detail. A representative composition of large whites would also be determined. This allows the AATF to calculate the amount of WEEE derived output present in the overall output streams. When these materials are received by a reprocessor/exporter, evidence relating to the amount of WEEE in the overall output can be claimed. The maximum claimed is related to the composition category protocol for the WEEE input. The composition category provided here is to be updated in line with the suggested additional work.

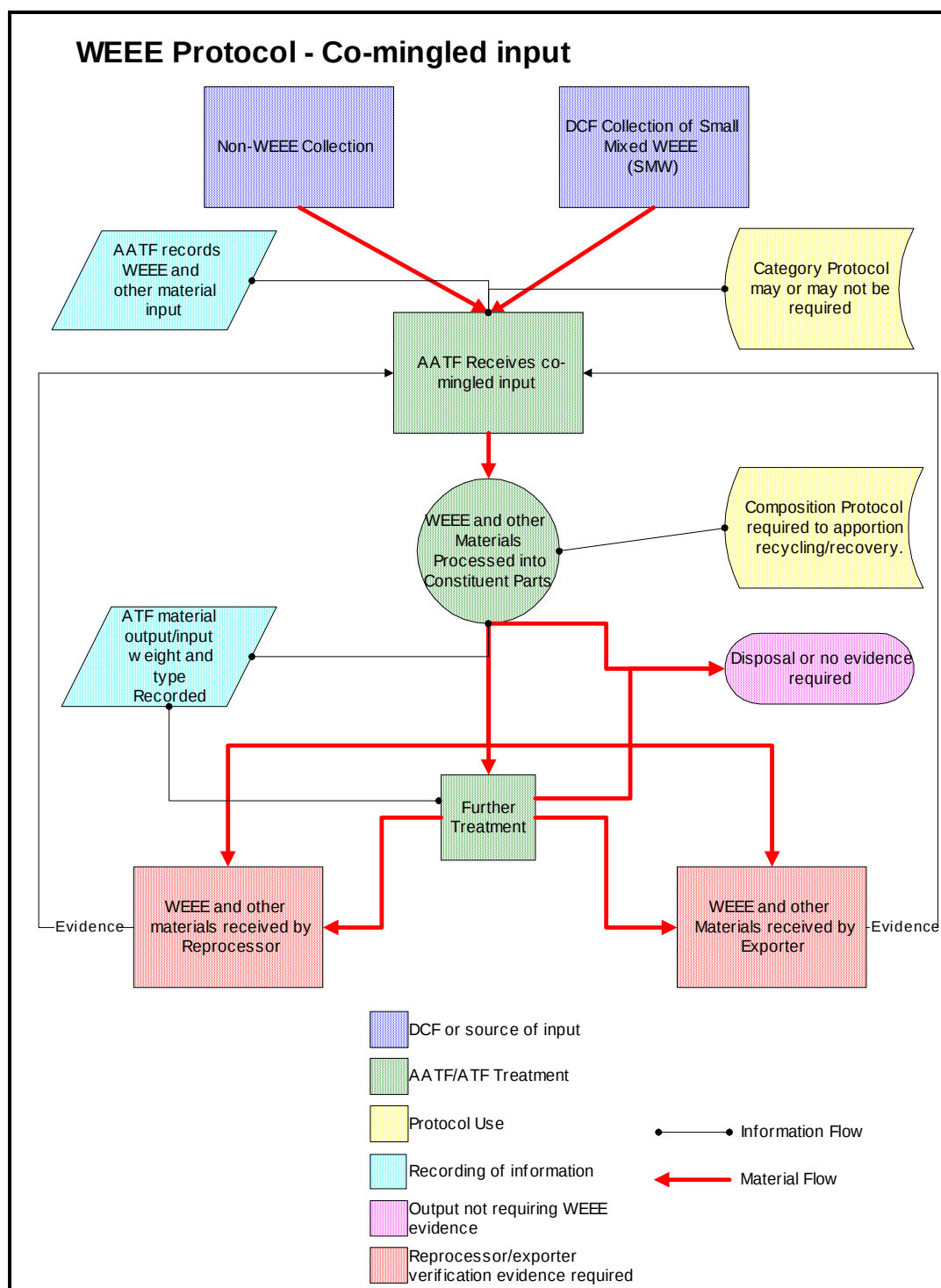


Figure 19 : Co-mingled processing of WEEE and Non-WEEE

7.3.4 Scenario 3– Single Item WEEE Input to an AATF

In this situation protocols are unlikely to be required. An AATF would accept items, for example fridges, which will be processed as a discrete input stream. The output weight and type from this processing could be measured by the AATF. The amount of evidence required to verify the recycling and recovery of outputs could be determined by recording the output. A simple mass balance on an AATF in feed and output would check on the processing rate and efficiency.

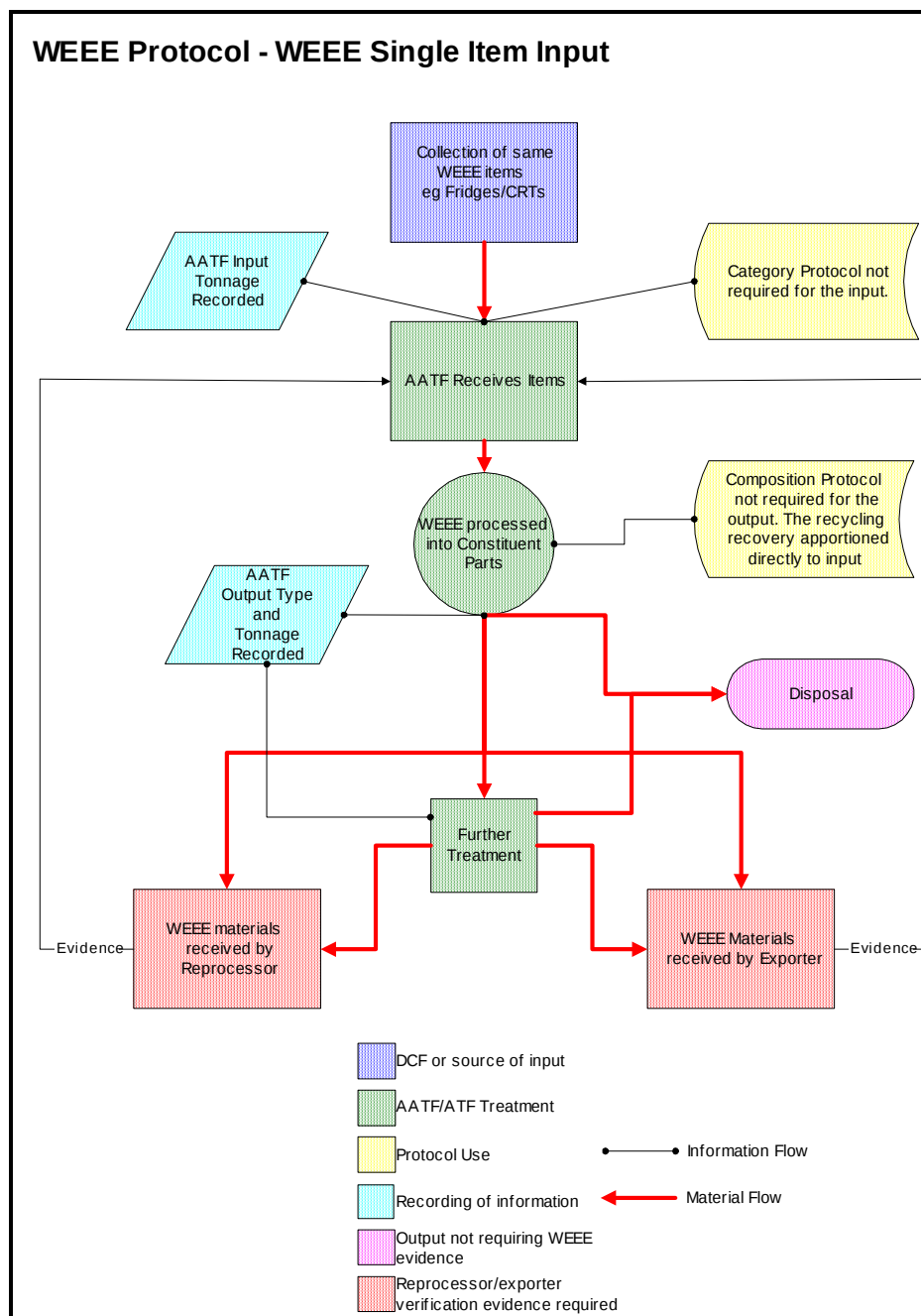


Figure 20 : Single Item WEEE processing

7.3.5 Scenario 4 – Single WEEE Category Input to an AATF

For the purpose of this example an AATF processes a single WEEE category at any one time. In this situation the Category Protocol is not likely to be required. The input to the AATF is defined. The output weight and type from this processing could be measured by the AATF.

The proportions of materials sent for recycling/recovery could be measured based upon the output from the AATF and receipt by the reprocessor/exporter. The compositional protocol specific to this category could be used as a check on the quantity and relative proportions of evidence secured.

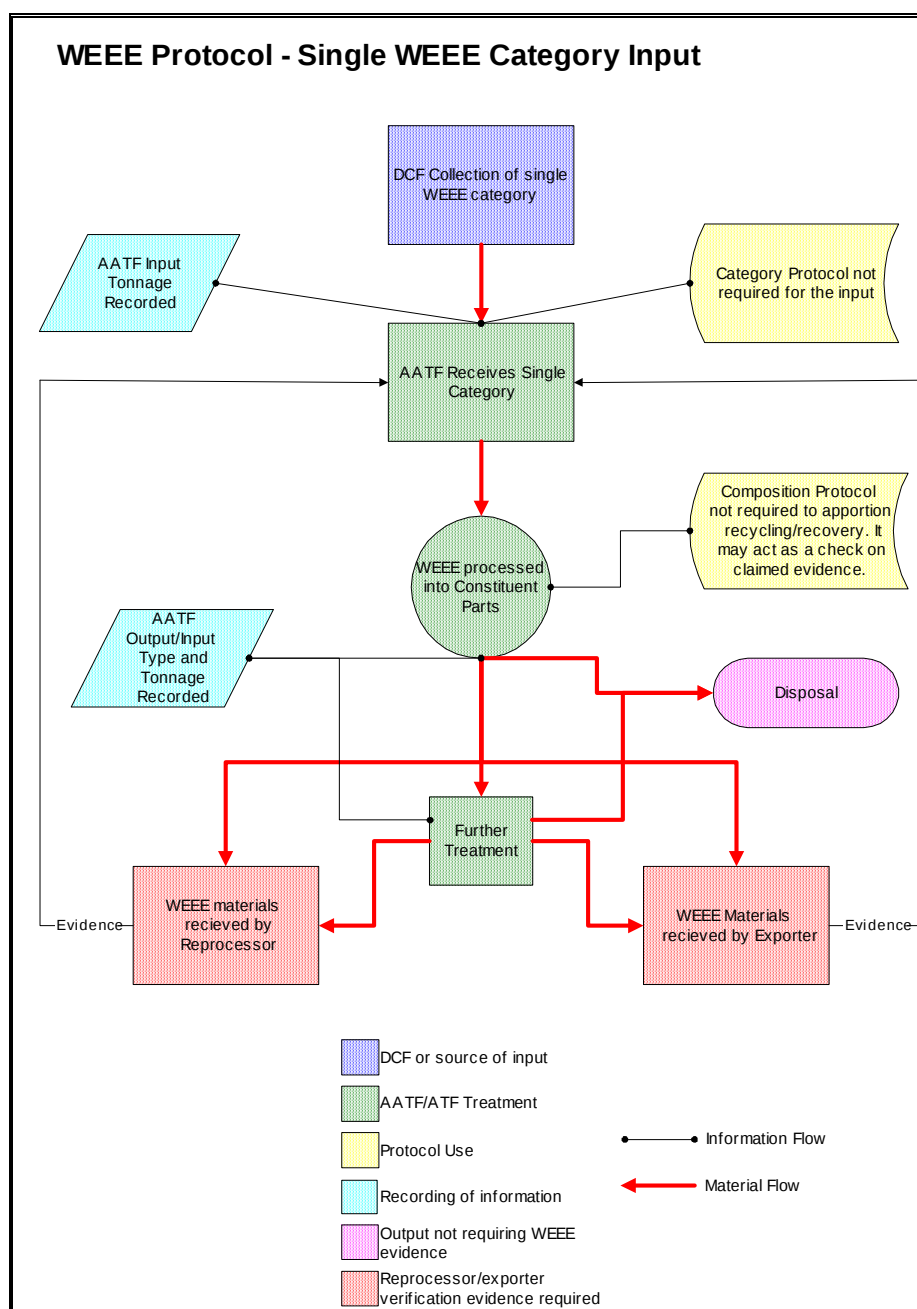


Figure 21 : Single category WEEE processing

7.4 Category Recycling/Recovery Calculations

Using the protocols suggested it is also possible to calculate, or apportion the recycling recovery undertaken on a category by category basis. This does, however, require certain assumptions to be made.

Consider a known weight of small mixed WEEE which is processed. The category make up of the input is known, each category is represented in the input according to the CP Protocol. The outputs will also be known, and recycling/recovery evidence can be secured upon these outputs. It is possible to allocate this evidence back to each category, firstly based upon the proportion of the category in the original input (Category Protocol) and based upon the proportion of the particular material within in that category (Category Composition Protocol).

This calculation makes the assumption that plastic, metal, other material and circuit boards from individual WEEE items and different categories have the same probability of being recovered/recycled during processing. The assumption is that the probability of metal, plastic etc from one category being recovered and recycled is exactly the same as that from any other category.

Those items which are easily recycled and recovered will contribute most to the recovery target. This calculation does, however, allow for the relative recycling/recovery rates to be compared to the targets set for each category even though the input is mixed.

A page from a calculation spread sheet is included in appendix 3 to demonstrate how this calculation may be undertaken. The values used are based upon those used in the worked example provided above.

The assumptions to derive the percentage of recovery recycling are relatively straight forward. For example, category 2 makes up about 20% of the SMW composition. Metals make up 38% of the category 2. So based upon the assumption that 86 tonnes of SMW is actually WEEE; 7.6 tonnes of the total 48.5 tonnes of WEEE metal present is derived from category 2. This can be repeated category by category and material by material to build up an overall summary distribution of materials. In this example 100% of metals, 58% of Plastic and 80% of the other materials present have been recovered/recycled. A total of 70.1 tonnes and 81% overall. When this is distributed on a weighed average basis by category the recycling/recovery rate for each category maybe calculated.

7.5 Summary of Protocols

The protocols are to be used to simplify the reporting and evidence requirements for the recycling and recovery of WEEE. They may not be relevant in all situations but even when a protocol is not required it may be used to provide a useful 'sense' check within the system.

It should be noted that during processing, WEEE may eventually lose its identity as WEEE, and will become its constituent parts, metal, plastic etc. Processing at an AATF may reduce all of the items into fragments of metals and plastic from which it will not be possible to determine which item they were derived or even from which category. These materials may be mixed with other similar grade material prior to dispatch. When delivered from an AATF to an exporter/reprocessor or even another ATF, they are unlikely to be always stored and moved as a discrete load of material. They may become mixed with other similar material to bulk them up for efficient handling and processing. Protocols use input data to determine what the likely total amount of evidence is required; they use the output and receipt data to determine what evidence may be secured and to track the material, and use the compositional protocol to reapportion this evidence to the appropriate input categories. With a protocol in place, the loss of identity of the WEEE material and mixture with other materials can occur, whilst still retaining an understanding of what proportions of WEEE materials are being processed and moved through the system.

The essential component to the recycling/recovery process is the evidence to demonstrate that WEEE has been recycled or recovered. Evidence can only be provided by a reprocessor or an exporter, and should be secured by the AATF. This may be a simple dispatch of material from the AATF to a reprocessor/exporter and the counter exchange of evidence confirming the reprocessor/exporter received the material. In this situation it is a relatively straightforward evidence trail. The situation is complicated by materials passing through intermediary companies, multiple treatment processes and brokers before they reach the reprocessors/exporter. These additional treatments may mix the WEEE derived materials with those from other sources. An auditable trail for the WEEE material is therefore required to track the material through to the reprocessor/exporter.

The required evidence is issued by the reprocessor/exporter back to the AATF. WEEE passing through the AATF will be processed and separated into various fractions which may then be sent onto other ATFs. The original AATF will have to collect evidence of the material moving through the ATF operation, by securing proof of receipt from the final reprocessor/exporter. The ATF will therefore be required to supply this evidence back up the processing chain to the AATF.

To achieve the evidence flow back up the chain the reprocessor/exporter would supply confirmation of material receipt back to the AATF. Where a third party ATF sits between the AATF and the reprocessor/exporter, data will have to pass through the intermediary ATF onto the AATF. A complete unbroken chain of movement evidence would have to be provided to enable recycling/recovery to be confirmed.

It is unlikely that WEEE would pass from an AATF to an ATF without a requirement to provide data or evidence. To track the data in this way the AATF, ATF and the reprocessor/exporter will have to record their total material input, the WEEE input, and the outputs of materials including that passing for final disposal.

Processing at an ATF may not just involve WEEE processing. Other non-WEEE materials may also be processed. This may be undertaken by either batch processing of the WEEE derived material (this is much simpler to track), or a mixed process of WEEE and non WEEE material, or a situation where WEEE derived materials are the only material received but they are received from several AATFs and mixed for processing.

The process of evidence flow is demonstrated more fully by the use of the flow diagram figure 22. Movements of materials are denoted by red arrows, the movement of evidence is denoted by blue arrows.

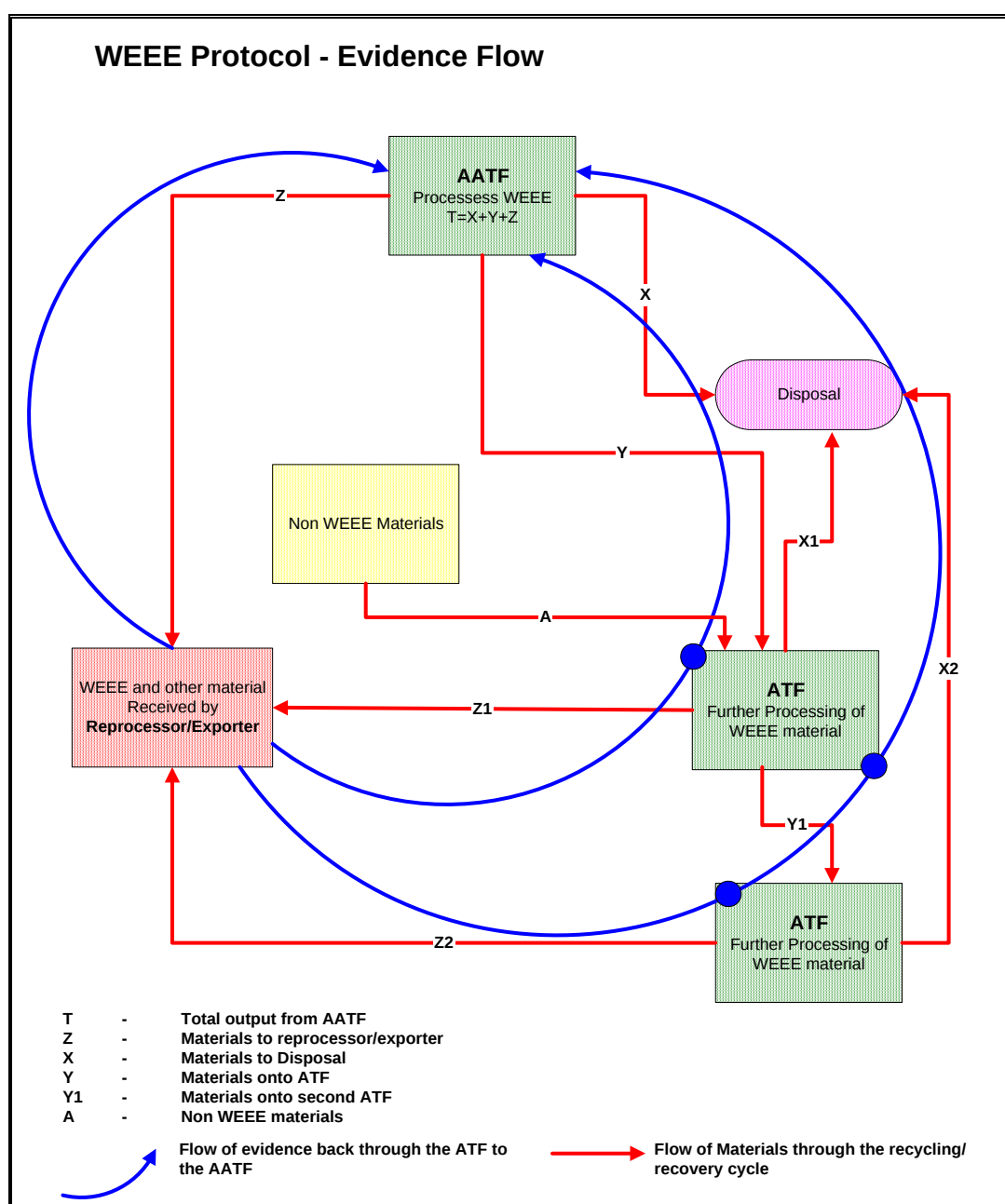


Figure 22 : Example of Material and Evidence flow

Figure 22 displays the flow of material from an AATF to three possible destinations. These material flows are denoted X,Y and Z. 'X' denotes material passing to disposal and out of the recycling chain. 'Y' denotes material passing on to an ATF for further treatment, and 'Z' denotes materials received by a reprocessor/exporter and is the only movement upon which recycling/recovery evidence may be claimed.

The direct movement of materials from the AATF to the reprocessor/exporter 'Z' can be simply tracked and the evidence can be issued back directly to the AATF, up to the maximum designated by the applicable protocol on the input.

Materials moving from the AATF on to an ATF (material flow 'Y') will have to be tracked by the AATF. The input and destination of the outputs will also have to be tracked and recorded to confirm material represented by 'Y' can be balanced by 'Z1', 'X1' and 'Y1'. Evidence of materials sent to and received by the reprocessor/exporter will be required so it can be passed back to the AATF.

Materials passed on to a second ATF 'Y1', will have to follow the same procedure to ensure the mass balance of material.

The system could be complicated by the addition of non WEEE material in to an ATF along with the WEEE material. In the flow diagram non WEEE material 'A' also enters an ATF. In this scenario the total ATF input is therefore A+Y. In this situation $X1+Y1+Z1$ will equal $A + Y$ and each may have a non WEEE component. The ratio of WEEE and non-WEEE in each of the streams has to be assumed to be the same as that in the input over the same period. Evidence may then only be issued on Z1 less the proportion made up of non WEEE. Another possibility is that of batch processing, whereby the WEEE and the non-WEEE are processed separately. The output for the materials may then be directly measured.

Checks on the system are also possible. For example with reference to the flow diagram figure 22 it is clear that Y will equal $((Z1+Z2) + (X1+X2))-A$. In addition, $Z+Z1+Z2$ for a particular material can not be greater than the determined protocol value for that material.

The addition of a Waste Broker to the cycle could be dealt with in the same way as additional ATFs. The broker will be required to demonstrate where the material 'received' by them is to be sent. Waste Brokers would then provide evidence of this movement directly to the AATF or via the ATF, even if they do not take physical charge of the materials, transfer notes and evidence of receipt would be available. It may be argued that there are commercial issues, where the broker would not want to disclose the destination for the materials. In a situation where a broker does not disclose the destination of the material the evidence chain would be broken and no recycling/recovery evidence could therefore be issued. It should be noted that within the packaging system, although not directly comparable to the WEEE evidence system, a broker is required to inform the reprocessor/exporter (generating the PRN evidence) to whom the PRN/PERN evidence is to be assigned.

The evidence of material movement and destination can be secured by use of the current waste transfer and waste return system. All sites receiving wastes will record amongst other things, the transferor, transferee, the type of material and dates of movement. Material moved from AATFs and ATFs which have been described appropriately, and as 'WEEE derived' throughout the movement cycle may be tracked and counted when they are eventually received by a reprocessor/exporter. It is clear from the beginning of the WEEE processing recycling/recovery cycle that an AATF will require evidence that recovery/recycling has occurred. The requirement for evidence from ATFs, brokers and reprocessors/exporters should ensure that the materials are appropriately assigned. It is in all parties' interest to ensure that material movements are clearly defined.

In summary, a continuous chain of proof, demonstrating WEEE material movements (in waste transfer paperwork) will be required to confirm recycling/recovery evidence. The evidence should be presented to demonstrate input, and the destination and quantities of outputs at each stage. If a continuous chain of evidence can not be provided then recycling/recovery evidence cannot be issued.

8.0 SUGGESTED FURTHER WORKS

8.1 Changes to the Small Mixed WEEE composition

8.1.1 Seasonality

The work undertaken represents a large sample of small mixed WEEE items. Nevertheless, the items were those which appeared in the waste stream over the autumn and winter period. Therefore it is expected that there may be seasonal bias to the data. It may be the case that during the seasonal transition from spring to summer the number of gardening tools may increase. This would be commensurate with the higher profile sales at this time of year and the failure of equipment following an idle winter. Furthermore, consumer equipment just after the Christmas period may also increase with the sales and replacement of older items.

Further seasonal segregation trials could be undertaken to understand whether there is a seasonal flux of categories or individual items.

8.1.2 Reduction of contaminants in Small Mixed WEEE loads

During the early stages of the WEEE regulations coming in to force it is possible that the composition of the WEEE bins will evolve. A combination of the public becoming more aware of what is actually WEEE, and more rigorous policing by the Civic Amenity site operators may, for example, lead to a reduction in the amount of non-WEEE and unallocated items. This will have a significant impact upon the evidence required by AATFs. If there is a fall in the non-WEEE content, more evidence per load will be required by the AATF.

8.1.3 Change in Composition

Another effect of the public becoming aware of what constitutes WEEE may cause the diversion of some smaller items in to the CA derived waste stream. During the trials it was noticeable that small items did not feature in the item sorts. A further effect may be to see latent WEEE, currently stored by the public, taken to CA sites for disposal, encouraged by an increase in the profile of WEEE recycling. These two factors may change the composition of SMW.

8.2 Large White Goods

The large white goods trial was dominated by washing machines. The items were secured from a take back scheme which, possibly due to the heavy and awkward size meant the majority of the items were washing machines. This bias in the sample means that the large white composition is dominated by items with an overall lower proportion of metals and a higher proportion of other materials, represented by the concrete ballast. It is proposed that a trial with a more balanced distribution of other items including dish washers, dryers and cookers be considered. This work has been agreed by CIWM and DEFRA. A plan to achieve the desired output has been compiled and submitted for DEFRA approval and will be started shortly.

8.3 Other Work

In addition to the expansion of the white goods trial, two other projects are also being developed. This includes the production of a simple online calculator. This will use the protocols to determine the appropriate recycling rates and distribute the recycling for example SMW across the categories which make it up.

Another project is to look in to the current recycling / recovery rates for WEEE in the UK at the moment. This is an interview and research based project. We will be looking to councils, local authorities and companies to help collect this information.

8.4 Reproducibility

The methods used to generate the data and ultimately calculate the suggested protocols is provided in detail for two principal reasons: Firstly it lays out clearly the processes followed to generate the data to provide confidence the data is sound; secondly it enables the work to be repeated or added to, if required in the future, using the same methods and procedures as adopted here. Use of common methods enables direct comparisons to be made between data sets, which if data were to be collected using other methods, may not support direct comparison.

9.0 CONCLUSIONS

Trials were undertaken to establish the typical category breakdown of mixed WEEE arising from Civic Amenity (CA) sites. Categories 2, 3, 4 and 6 were also processed through a WEEE processing plant in order to establish the proportions of metal, plastic and other materials within each category. The compositions of category 1 large white goods, category 2 small items, category 3 CRTs (IT monitors) and category 4 CRTs (televisions) were also determined through separate trials. The average composition of fridges was compiled using data obtained from 5 fridge processors.

Using the trial data, the following protocols have been developed:

-  a protocol based on the proportions of WEEE categories within mixed WEEE loads (category protocol, CP),
-  protocols based on the proportions of metals, plastics and other materials within each WEEE category present within a typical mixed WEEE load (categories 1, 2, 3, 4, 5, 6, 7 and 9). Separate protocols are provided for large white goods, fridges, CRTs (category 3) and CRTs (category 4).
-  a protocol for a typical load of mixed WEEE based on the proportion of metals, plastics, other materials and PCB within each category (Small Mixed WEEE Protocol, SMW)

The protocols are capable of demonstrating how much WEEE has been received at reprocessors or exporters for recycling, whether received by the AATF as an individual category or as a co-mingled load with other wastes such as cars or packaging.

Appendix 1

Hand Sort Data for Mixed WEEE

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. BLA1	Source of Mixed WEEE Blackburn	Blaydon Arrival Date 4th October 2006	Net Mixed WEEE Tonnage 8.560 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	3409	39.8	Cables and plugs	19	0.2
Category 2 Small household appliances	1264	14.8	Batteries	45	0.5
Category 3 IT & telecommunications equipment	1092	12.8	Transformers	0	0.0
Category 4 Consumer equipment	1127	13.2	Non WEEE	610	7.1
Category 5 Lighting equipment	199	2.3	Unallocated material	43	0.5
Category 6 Electric & electronic goods	716	8.4			
Category 7 Toys, leisure & sports equipment	28	0.3	Total:	8560	100
Category 9 Monitoring & control instruments	7	0.1			

ITEM COUNT					
	Fryers	9	Disk drives *	Equipment for turning, milling, sanding, grinding, sawing	15
	Kettles *	23	User terminals and systems	cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances	Food Processors *	8	Facsimile	2 folding, bending or similar processing of wood, metal	
Large cooling appliances	Grinders, coffee machines and equipment for opening		Telex	and other materials	
Refrigerators	or sealing containers or packages		Telephones	12 Tools for riveting, nailing or screwing or removing	2
Freezers	Electric knives and knife sharpeners	2	Pay telephones	rivets, nails, screws or similar uses	
Other large appliances used for refrigeration, conservation	Appliances for hair-cutting, hair drying, tooth brushing,	7	Cordless telephones	Tools for welding, soldering or similar use	1
and storage of food	shaving, massage and other body care applications		Cellular telephones	Equipment for spraying, spreading, dispersing or other	8
Washing machines	16 Clocks, watches and equipment for the purpose of		Answering systems	treatment of liquid or gaseous substances by other means	
Clothes dryers	5 measuring, indicating or registering time		and other products or equipment of transmitting sound,	Tools for mowing or other gardening activities	1
Dish washing machines	7 Scales		images or other information by telecommunications	Lawnmowers *	53
Cooking	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment	Strimmers *	19
Electric stoves	8 Centralised data processing:		Radio sets	Hedgecutters *	
Electric hot plates	1 Mainframes		Television sets	Category 7 Toys, leisure and sports equipment	
Microwaves	81 Minicomputers		Videocameras	Electric trains or car racing sets	
Other large appliances used for cooking and other	Printer units		Video recorders and DVD recorders *	16 Hand-held video game consoles	
processing of food	Personal computing:		Hi-fi recorders and CD players *	68 Video games	2
Electric heating appliances	21 Personal computers (CPU, mouse, screen and		Car Stereos *	Computers for biking, diving, running, rowing, etc.	
Electric radiators	1 keyboard included)		Audio amplifiers	Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating	CPU *	44	Speakers *	Coin slot machines	
furniture	Mouse *	3	Record turntables *	10 Toy Cars *	
Electric fans	5 Screen *		Musical instruments	1 Scooters *	
Air conditioner appliances	Keyboard *	26	And other products or equipment for the purpose of	Category 9 Monitoring and control instruments	
Other fanning, exhaust ventilation & conditioning equipment	Laptop computers (CPU, mouse, screen and keyboard		recording or reproducing sound or images, including	Smoke detector	1
Dehumidifiers *	included)		signals or other technologies for the distribution of	Heating regulators	
Category 2 Small household appliances	Notebook computers		sound or image than by telecommunications	Thermostats	
Vacuum cleaners	137 Notepad computers		Digital TV boxes *	6 Measuring, weighing or adjusting appliances for	
Carpet sweepers	Printers	38	Cameras *	7 household or as laboratory equipment	
Other appliances for cleaning	Copying equipment	8	Category 6 Electrical and electronic tools	Other monitoring and control instruments used in	4
Appliances used for sewing, knitting, weaving and other	11 Electrical and electronic typewriters	3	(with the exception of large-scale stationary	industrial installations (e.g. in control panels)	
processing for textiles	Pocket and desk calculators	3	industrial tools)		
Irons and other appliances for ironing, mangling and	and other equipment for the collection, storage		Drills	9 Items are as listed in the WEEE Directive	
other care of clothing	processing, presentation or communication of		Saws	3 Descriptions of items more specific than those listed in the	
Toasters and sandwich toasters	29 information by electronic means		Sewing machines	1 Directive are marked with an asterisk	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. ERI1	Source of Mixed WEEE Footscray and Crayford	Blaydon Arrival Date 9th October 2006	Net Mixed WEEE Tonnage 9.728 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	460	4.7	Cables and plugs	53	0.5
Category 2 Small household appliances	1916	19.7	Batteries	8	0.1
Category 3 IT & telecommunications equipment	2977	30.6	Transformers	0	0.0
Category 4 Consumer equipment	1852	19.0	Non WEEE	616	6.3
Category 5 Lighting equipment	269	2.8	Unallocated material	56	0.6
Category 6 Electric & electronic goods	1458	15.0			
Category 7 Toys, leisure & sports equipment	23	0.2			
Category 9 Monitoring & control instruments	38	0.4	Total:	9728	100

ITEM COUNT						
Category 1 Large household appliances	Large cooling appliances		8	Disk drives *	Equipment for turning, milling, sanding, grinding, sawing	9
	Refrigerators	3	26	User terminals and systems	cutting, shearing, drilling, making holes, punching,	
	Freezers		14	Facsimile	folding, bending or similar processing of wood, metal	
	Other large appliances used for refrigeration, conservation and storage of food			Telex	and other materials	
	Washing machines			Telephones	Tools for riveting, nailing or screwing or removing	
	Clothes dryers			Pay telephones	rivets, nails, screws or similar uses	
	Dish washing machines			Cordless telephones	Tools for welding, soldering or similar use	
	Cooking	1	13	Cellular telephones	Equipment for spraying, spreading, dispersing or other	
	Electric stoves			Answering systems	treatment of liquid or gaseous substances by other means	
	Electric hot plates	1		and other products or equipment of transmitting sound,	Tools for mowing or other gardening activities	
	Microwaves	4		images or other information by telecommunications	Lawnmowers *	106
	Other large appliances used for cooking and other processing of food			Category 4 Consumer equipment	Strimmers *	29
	Electric heating appliances			Radio sets	Hedgecutters *	
	Electric radiators	33		Television sets	Category 7 Toys, leisure and sports equipment	
	Other large appliances for heating rooms, beds, seating furniture			Videocameras	Electric trains or car racing sets	
	Electric fans	36		Video recorders and DVD recorders *	Hand-held video game consoles	
	Air conditioner appliances			Hi-fi recorders and CD players *	Video games and game consoles *	5
	Other fanning, exhaust ventilation & conditioning equipment			Car Stereos *	Computers for biking, diving, running, rowing, etc.	1
	Dehumidifiers *	6		Audio amplifiers	Sports equipment with electric or electronic components	
	Category 2 Small household appliances			Speakers *	Coin slot machines	
	Vacuum cleaners	207		Record turntables *	Toy Cars *	
Carpet sweepers			Musical instruments	Scooters *		
Other appliances for cleaning			And other products or equipment for the purpose of	Category 9 Monitoring and control instruments		
Appliances used for sewing, knitting, weaving and other processing for textiles			recording or reproducing sound or images, including	Smoke detector		
Irons and other appliances for ironing, mangling and other care of clothing	22		signals or other technologies for the distribution of	Heating regulators		
Toasters and sandwich toasters *	34		sound or image than by telecommunications	Thermostats		
			Digital TV boxes *	Measuring, weighing or adjusting appliances for		
			Cameras *	household or as laboratory equipment		
			Category 6 Electrical and electronic tools	Other monitoring and control instruments used in	11	
			(with the exception of large-scale stationary industrial tools)	industrial installations (e.g. in control panels)		
			Drills			
			Saws			
			Sewing machines			
				Items are as listed in the WEEE Directive		
				Descriptions of items more specific than those listed in the		
				Directive are marked with an asterisk		

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. KIN1	Source of Mixed WEEE Coventry	Blaydon Arrival Date 17th October 2006	Net Mixed WEEE Tonnage 7.480 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	1105	14.8	Cables and plugs	122	1.6
Category 2 Small household appliances	1478	19.8	Batteries	23	0.3
Category 3 IT & telecommunications equipment	1376	18.4	Transformers	9	0.1
Category 4 Consumer equipment	1615	21.6	Non WEEE	529	7.1
Category 5 Lighting equipment	169	2.3	Unallocated material	43	0.6
Category 6 Electric & electronic goods	986	13.2			
Category 7 Toys, leisure & sports equipment	3	0.0	Total:	7480	100
Category 9 Monitoring & control instruments	21	0.3			

ITEM COUNT	Fryers	3	<i>Disk drives *</i>	Equipment for turning, milling, sanding, grinding, sawing	18
Category 1 Large household appliances	<i>Kettles *</i>	13	User terminals and systems	cutting, shearing, drilling, making holes, punching,	
Large cooling appliances	<i>Food Processors *</i>	11	Facsimile	3 folding, bending or similar processing of wood, metal	
Refrigerators	Grinders, coffee machines and equipment for opening		Telex	and other materials	
Freezers	or sealing containers or packages		Telephones	9 Tools for riveting, nailing or screwing or removing	
Other large appliances used for refrigeration, conservation	Electric knives <i>and knife sharpeners</i>		Pay telephones	rivets, nails, screws or similar uses	
and storage of food	Appliances for hair-cutting, hair drying, tooth brushing,	5	Cordless telephones	Tools for welding, soldering or similar use	
Washing machines	shaving, massage and other body care applications		Cellular telephones	Equipment for spraying, spreading, dispersing or other	8
Clothes dryers	Clocks, watches and equipment for the purpose of		Answering systems	treatment of liquid or gaseous substances by other means	
Dish washing machines	measuring, indicating or registering time		and other products or equipment of transmitting sound,	Tools for mowing or other gardening activities	
Cooking	Scales		images or other information by telecommunications	<i>Lawnmowers *</i>	69
Electric stoves	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment	<i>Strimmers *</i>	16
Electric hot plates	<i>Centralised data processing:</i>		Radio sets	<i>Hedgecutters *</i>	
Microwaves	Mainframes		Television sets	Category 7 Toys, leisure and sports equipment ⁽¹⁾	
Other large appliances used for cooking and other	Minicomputers		Videocameras	Electric trains or car racing sets	
processing of food	Printer units		Video recorders <i>and DVD recorders *</i>	75 Hand-held video game consoles	
Electric heating appliances	<i>Personal computing:</i>		Hi-fi recorders <i>and CD players *</i>	75 Video games <i>and game consoles *</i>	
Electric radiators	Personal computers (CPU, mouse, screen and		<i>Car Stereos *</i>	3 Computers for biking, diving, running, rowing, etc.	
Other large appliances for heating rooms, beds, seating	keyboard included)		Audio amplifiers	6 Sports equipment with electric or electronic components	
furniture	<i>CPU *</i>	62	<i>Speakers *</i>	69 Coin slot machines	
Electric fans	<i>Mouse *</i>	18	<i>Record turntables *</i>	5 <i>Toy Cars *</i>	
Air conditioner appliances	<i>Screen *</i>		Musical instruments	2 <i>Scooters *</i>	
Other fanning, exhaust ventilation & conditioning equipment	<i>Keyboard *</i>	37	And other products or equipment for the purpose of	Category 9 Monitoring and control instruments	
<i>Dehumidifiers *</i>	Laptop computers (CPU, mouse, screen and keyboard		recording or reproducing sound or images, including	Smoke detector	
Category 2 Small household appliances	included)		signals or other technologies for the distribution of	Heating regulators	
Vacuum cleaners	Notebook computers		sound or image than by telecommunications	Thermostats	
Carpet sweepers	Notepad computers		<i>Digital TV boxes *</i>	11 Measuring, weighing or adjusting appliances for	
Other appliances for cleaning	Printers	46	<i>Cameras *</i>	household or as laboratory equipment	
Appliances used for sewing, knitting, weaving and other	Copying equipment	17	Category 6 Electrical and electronic tools	Other monitoring and control instruments used in	6
processing for textiles	Electrical and electronic typewriters	8	(with the exception of large-scale stationary	industrial installations (e.g. in control panels)	
Irons and other appliances for ironing, mangling and	Pocket and desk calculators		industrial tools)		
other care of clothing	and other equipment for the collection, storage		Drills	10 <i>Items are as listed in the WEEE Directive</i>	
Toasters <i>and sandwich toasters *</i>	processing, presentation or communication of		Saws	2 <i>Descriptions of items more specific than those listed in the</i>	
	information by electronic means		Sewing machines	5 <i>Directive are marked with an asterisk ⁽¹⁾ not counted</i>	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. KIN2	Source of Mixed WEEE Coventry	Blaydon Arrival Date 23rd October 2006	Net Mixed WEEE Tonnage 6.563 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	786	12.0	Cables and plugs	192	2.9
Category 2 Small household appliances	1129	17.2	Batteries	35	0.5
Category 3 IT & telecommunications equipment	1098	16.7	Transformers	0	0.0
Category 4 Consumer equipment	1592	24.3	Non WEEE	711	10.8
Category 5 Lighting equipment	134	2.0	Unallocated material	53	0.8
Category 6 Electric & electronic goods	796	12.1			
Category 7 Toys, leisure & sports equipment	13	0.2	Total:	6563	100
Category 9 Monitoring & control instruments	25	0.4			

ITEM COUNT						
Category 1 Large household appliances	Large cooling appliances		1	Disk drives *	Equipment for turning, milling, sanding, grinding, sawing	22
	Refrigerators	1	16	User terminals and systems	cutting, shearing, drilling, making holes, punching,	
	Freezers		8	Facsimile	folding, bending or similar processing of wood, metal	
	Other large appliances used for refrigeration, conservation and storage of food			4	Telex	and other materials
	Washing machines			15	Telephones	Tools for riveting, nailing or screwing or removing rivets, nails, screws or similar uses
	Clothes dryers	4		2	Pay telephones	Tools for welding, soldering or similar use
	Dish washing machines				Cordless telephones	Equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means
	Cooking	7			Cellular telephones	Tools for mowing or other gardening activities
	Electric stoves				Answering systems	
	Electric hot plates				and other products or equipment of transmitting sound, images or other information by telecommunications	
	Microwaves	22			Category 4 Consumer equipment	
	Other large appliances used for cooking and other processing of food				Radio sets	
	Electric heating appliances	31			21	Hedgecutters *
	Electric radiators				Television sets	Category 7 Toys, leisure and sports equipment
	Other large appliances for heating rooms, beds, seating furniture				Videocameras	Electric trains or car racing sets
	Electric fans	20			93	Hand-held video game consoles
	Air conditioner appliances				65	Video games and game consoles *
	Other fanning, exhaust ventilation & conditioning equipment				1	Computers for biking, diving, running, rowing, etc.
	Dehumidifiers *	1			4	Sports equipment with electric or electronic components
	Category 2 Small household appliances				88	Coin slot machines
	Vacuum cleaners	141				Toy Cars *
	Carpet sweepers				1	Scooters *
	Other appliances for cleaning				1	Category 9 Monitoring and control instruments
	Appliances used for sewing, knitting, weaving and other processing for textiles					Smoke detector
	Irons and other appliances for ironing, mangling and other care of clothing	17				Heating regulators
	Toasters and sandwich toasters *					Thermostats
					Measuring, weighing or adjusting appliances for household or as laboratory equipment	
					Other monitoring and control instruments used in industrial installations (e.g. in control panels)	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. ERI2	Source of Mixed WEEE Footscray and Crayford	Blaydon Arrival Date 26th October 2006	Net Mixed WEEE Tonnage 9.869 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	1139	11.5	Cables and plugs	65	0.7
Category 2 Small household appliances	1420	14.4	Batteries	36	0.4
Category 3 IT & telecommunications equipment	2803	28.4	Transformers	0	0.0
Category 4 Consumer equipment	1921	19.5	Non WEEE	939	9.5
Category 5 Lighting equipment	213	2.2	Unallocated material	43	0.4
Category 6 Electric & electronic goods	1105	11.2			
Category 7 Toys, leisure & sports equipment	158	1.6	Total:	9869	100
Category 9 Monitoring & control instruments	26	0.3			

ITEM COUNT		Fryers	10	Disk drives *	9	Equipment for turning, milling, sanding, grinding, sawing	23
		Kettles *	44	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances		Food Processors *	20	Facsimile	4	folding, bending or similar processing of wood, metal	
Large cooling appliances		Grinders, coffee machines and equipment for opening	5	Telex		and other materials	
Refrigerators		or sealing containers or packages		Telephones	47	Tools for riveting, nailing or screwing or removing	
Freezers		Electric knives and knife sharpeners	2	Pay telephones		rivets, nails, screws or similar uses	
Other large appliances used for refrigeration, conservation		Appliances for hair-cutting, hair drying, tooth brushing,	28	Cordless telephones		Tools for welding, soldering or similar use	
and storage of food		shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	2
Washing machines		Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
Clothes dryers		measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	1
Dish washing machines		Scales		images or other information by telecommunications		Lawnmowers *	63
Cooking	8	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Strimmers *	22
Electric stoves		Centralised data processing:		Radio sets	30	Hedgecutters *	2
Electric hot plates		Mainframes		Television sets		Category 7 Toys, leisure and sports equipment	
Microwaves	22	Minicomputers		Videocameras	2	Electric trains or car racing sets	
Other large appliances used for cooking and other		Printer units		Video recorders and DVD recorders *	71	Hand-held video game consoles	2
processing of food		Personal computing:		Hi-fi recorders and CD players *	70	Video games and game consoles *	
Electric heating appliances	53	Personal computers (CPU, mouse, screen and		Car Stereos *	9	Computers for biking, diving, running, rowing, etc.	2
Electric radiators		keyboard included)		Audio amplifiers	3	Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating	1	CPU *	95	Speakers *	95	Coin slot machines	
furniture		Mouse *	10	Record turntables *	33	Toy Cars *	6
Electric fans	30	Screen *		Musical instruments	3	Scooters *	6
Air conditioner appliances		Keyboard *	76	And other products or equipment for the purpose of	2	Category 9 Monitoring and control instruments	
Other fanning, exhaust ventilation & conditioning equipment	1	Laptop computers (CPU, mouse, screen and keyboard	1	recording or reproducing sound or images, including		Smoke detector	
Dehumidifiers *	4	included)		signals or other technologies for the distribution of		Heating regulators	
Category 2 Small household appliances		Notebook computers		sound or image than by telecommunications		Thermostats	
Vacuum cleaners	132	Notepad computers		Digital TV boxes *	9	Measuring, weighing or adjusting appliances for	
Carpet sweepers		Printers	124	Cameras *		household or as laboratory equipment	
Other appliances for cleaning		Copying equipment	24	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	8
Appliances used for sewing, knitting, weaving and other		Electrical and electronic typewriters	6	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
processing for textiles		Pocket and desk calculators	1	industrial tools)			
Irons and other appliances for ironing, mangling and	26	and other equipment for the collection, storage		Drills	10	Items are as listed in the WEEE Directive	
other care of clothing		processing, presentation or communication of		Saws	1	Descriptions of items more specific than those listed in the	
Toasters and sandwich toasters *	48	information by electronic means		Sewing machines	11	Directive are marked with an asterisk	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. BLA2	Source of Mixed WEEE Blackburn	Blaydon Arrival Date 1st November 2006	Net Mixed WEEE Tonnage 9.727 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	5284	54.3	Cables and plugs	119	1.2
Category 2 Small household appliances	934	9.6	Batteries	17	0.2
Category 3 IT & telecommunications equipment	809	8.3	Transformers	0	0.0
Category 4 Consumer equipment	978	10.1	Non WEEE	998	10.3
Category 5 Lighting equipment	184	1.9	Unallocated material	54	0.6
Category 6 Electric & electronic goods	323	3.3			
Category 7 Toys, leisure & sports equipment	12	0.1	Total:	9727	100
Category 9 Monitoring & control instruments	14	0.1			

ITEM COUNT					
	Fryers	4	Disk drives *	Equipment for turning, milling, sanding, grinding, sawing	9
	Kettles *	22	User terminals and systems	cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances	Food Processors *	4	Facsimile	2 folding, bending or similar processing of wood, metal	
Large cooling appliances	Grinders, coffee machines and equipment for opening	1	Telex	and other materials	
Refrigerators	or sealing containers or packages		Telephones	15 Tools for riveting, nailing or screwing or removing	
Freezers	Electric knives and knife sharpeners		Pay telephones	rivets, nails, screws or similar uses	
Other large appliances used for refrigeration, conservation	Appliances for hair-cutting, hair drying, tooth brushing,	4	Cordless telephones	Tools for welding, soldering or similar use	
and storage of food	shaving, massage and other body care applications		Cellular telephones	Equipment for spraying, spreading, dispersing or other	1
Washing machines	45 Clocks, watches and equipment for the purpose of		Answering systems	treatment of liquid or gaseous substances by other means	
Clothes dryers	14 measuring, indicating or registering time		and other products or equipment of transmitting sound,	Tools for mowing or other gardening activities	
Dish washing machines	5 Scales		images or other information by telecommunications	Lawnmowers *	23
Cooking	21 Category 3 IT and telecommunications equipment		Category 4 Consumer equipment	Strimmers *	7
Electric stoves	Centralised data processing:		Radio sets	Hedgecutters *	1
Electric hot plates	Mainframes		Television sets	Category 7 Toys, leisure and sports equipment ⁽¹⁾	
Microwaves	55 Minicomputers		Videocameras	Electric trains or car racing sets	
Other large appliances used for cooking and other	Printer units		Video recorders and DVD recorders *	32 Hand-held video game consoles	
processing of food	Personal computing:		Hi-fi recorders and CD players *	23 Video games and game consoles *	
Electric heating appliances	12 Personal computers (CPU, mouse, screen and		Car Stereos *	4 Computers for biking, diving, running, rowing, etc.	
Electric radiators	9 keyboard included)		Audio amplifiers	2 Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating	2 CPU *	28	Speakers *	41 Coin slot machines	
furniture	Mouse *	2	Record turntables *	9 Toy Cars *	
Electric fans	13 Screen *		Musical instruments	1 Scooters *	
Air conditioner appliances	1 Keyboard *	25	And other products or equipment for the purpose of	Category 9 Monitoring and control instruments ⁽¹⁾	
Other fanning, exhaust ventilation & conditioning equipment	1 Laptop computers (CPU, mouse, screen and keyboard		recording or reproducing sound or images, including	Smoke detector	
Dehumidifiers *	included)		signals or other technologies for the distribution of	Heating regulators	
Category 2 Small household appliances	Notebook computers		sound or image than by telecommunications	Thermostats	
Vacuum cleaners	82 Notepad computers		Digital TV boxes *	3 Measuring, weighing or adjusting appliances for	
Carpet sweepers	Printers	35	Cameras *	household or as laboratory equipment	
Other appliances for cleaning	Copying equipment	9	Category 6 Electrical and electronic tools	Other monitoring and control instruments used in	
Appliances used for sewing, knitting, weaving and other	Electrical and electronic typewriters	3	(with the exception of large-scale stationary	industrial installations (e.g. in control panels)	
processing for textiles	Pocket and desk calculators		industrial tools)		
Irons and other appliances for ironing, mangling and	8 and other equipment for the collection, storage		Drills	4 Items are as listed in the WEEE Directive	
other care of clothing	processing, presentation or communication of		Saws	2 Descriptions of items more specific than those listed in the	
Toasters and sandwich toasters *	26 information by electronic means		Sewing machines	2 Directive are marked with an asterisk ⁽¹⁾ not counted	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. SIMS1/SIMS2	Source of Mixed WEEE Wakefield & Doncaster	Blaydon Arrival Date 3rd November 2006	Net Mixed WEEE Tonnage 19.740 tonnes
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HAND SORT WEIGHTS					
Category		Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg) % of Mixed WEEE Load
Category 1	Large household appliances	621	3.1	Cables and plugs	201 1.0
Category 2	Small household appliances	5915	30.0	Batteries	0 0.0
Category 3	IT & telecommunications equipment	5264	26.7	Transformers	0 0.0
Category 4	Consumer equipment	4832	24.5	Non WEEE	761 3.9
Category 5	Lighting equipment	159	0.8	Unallocated material	81 0.4
Category 6	Electric & electronic goods	1653	8.4		
Category 7	Toys, leisure & sports equipment	24	0.1	Total:	19740 100
Category 9	Monitoring & control instruments	228	1.2		

ITEM COUNT						
Category 1 Large household appliances	Large cooling appliances	Fryers	14	Disk drives *	Equipment for turning, milling, sanding, grinding, sawing	34
	Refrigerators	Kettles *	22	User terminals and systems	cutting, shearing, drilling, making holes, punching,	
	Freezers	Food Processors *	8	Facsimile	8 folding, bending or similar processing of wood, metal and other materials	
	Other large appliances used for refrigeration, conservation and storage of food	Grinders, coffee machines and equipment for opening or sealing containers or packages	7	Telex	40 Tools for riveting, nailing or screwing or removing rivets, nails, screws or similar uses	
	Washing machines	Electric knives and knife sharpeners		Telephones	Tools for welding, soldering or similar use	
	Clothes dryers	Appliances for hair-cutting, hair drying, tooth brushing, shaving, massage and other body care applications	8	Cordless telephones	Equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means	15
	Dish washing machines	Clocks, watches and equipment for the purpose of measuring, indicating or registering time		Cellular telephones	Tools for mowing or other gardening activities	
	Cooking	Scales		Answering systems	Lawnmowers *	131
	Electric stoves	Category 3 IT and telecommunications equipment		and other products or equipment of transmitting sound, images or other information by telecommunications	Strimmers *	61
	Electric hot plates	Centralised data processing:		Category 4 Consumer equipment	Hedgecutters *	17
Microwaves	Mainframes		Radio sets	70		
Other large appliances used for cooking and other processing of food	Minicomputers		Television sets	Category 7 Toys, leisure and sports equipment ⁽¹⁾		
Electric heating appliances	Printer units		Videocameras	4 Electric trains or car racing sets		
Electric radiators	Personal computing:		Video recorders and DVD recorders *	356 Hand-held video game consoles		
Other large appliances for heating rooms, beds, seating furniture	Personal computers (CPU, mouse, screen and keyboard included)		Hi-fi recorders and CD players *	235 Video games and game consoles *		
Electric fans	CPU *	271	Car Stereos *	16 Computers for biking, diving, running, rowing, etc.		
Air conditioner appliances	Mouse *	17	Audio amplifiers	23 Sports equipment with electric or electronic components		
Other fanning, exhaust ventilation & conditioning equipment	Screen *		Speakers *	200 Coin slot machines		
Dehumidifiers *	Keyboard *	266	Record turntables *	7 Toy Cars *		
Category 2 Small household appliances	Laptop computers (CPU, mouse, screen and keyboard included)	2	Musical instruments	Scooters *		
Vacuum cleaners	Notebook computers		And other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound or image than by telecommunications	Category 9 Monitoring and control instruments ⁽¹⁾		
Carpet sweepers	Notebook computers		Digital TV boxes *	35 Smoke detector		
Other appliances for cleaning	Printers	257	Cameras *	Heating regulators		
Appliances used for sewing, knitting, weaving and other processing for textiles	Copying equipment	35	Category 6 Electrical and electronic tools (with the exception of large-scale stationary industrial tools)	Thermostats		
Irons and other appliances for ironing, mangling and other care of clothing	Electrical and electronic typewriters	9	Drills	Measuring, weighing or adjusting appliances for household or as laboratory equipment		
Toasters and sandwich toasters *	Pocket and desk calculators		Saws	Other monitoring and control instruments used in industrial installations (e.g. in control panels)		
	and other equipment for the collecton, storage processing, presentation or communication of information by electronic means		Sewing machines	11 Items are as listed in the WEEE Directive		
				9 Descriptions of items more specific than those listed in the Directive are marked with an asterisk ⁽¹⁾ not counted		

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. ERI3	Source of Mixed WEEE Footscray and Crayford	Blaydon Arrival Date 22nd November 2006	Net Mixed WEEE Tonnage 10.840 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	940	8.7	Cables and plugs	25	0.2
Category 2 Small household appliances	2095	19.3	Batteries	0	0.0
Category 3 IT & telecommunications equipment	2693	24.8	Transformers	14	0.1
Category 4 Consumer equipment	2627	24.2	Non WEEE	863	8.0
Category 5 Lighting equipment	278	2.6	Unallocated material	62	0.6
Category 6 Electric & electronic goods	1002	9.2			
Category 7 Toys, leisure & sports equipment	21	0.2	Total:	10840	100
Category 9 Monitoring & control instruments	220	2.0			

ITEM COUNT		Fryers	12	Disk drives *	7	Equipment for turning, milling, sanding, grinding, sawing	24
		Kettles *	48	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances		Food Processors *	26	Facsimile	8	folding, bending or similar processing of wood, metal	
Large cooling appliances		Grinders, coffee machines and equipment for opening	1	Telex		and other materials	
Refrigerators		or sealing containers or packages		Telephones	30	Tools for riveting, nailing or screwing or removing	
Freezers	4	Electric knives and knife sharpeners	1	Pay telephones		rivets, nails, screws or similar uses	
Other large appliances used for refrigeration, conservation		Appliances for hair-cutting, hair drying, tooth brushing,	39	Cordless telephones		Tools for welding, soldering or similar use	
and storage of food		shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	9
Washing machines	1	Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
Clothes dryers	3	measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	2
Dish washing machines		Scales	2	images or other information by telecommunications		Lawnmowers *	41
Cooking	3	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Strimmers *	25
Electric stoves		Centralised data processing:		Radio sets	99	Hedgecutters *	12
Electric hot plates		Mainframes		Television sets		Category 7 Toys, leisure and sports equipment	
Microwaves	22	Minicomputers		Videocameras	3	Electric trains or car racing sets	
Other large appliances used for cooking and other		Printer units		Video recorders and DVD recorders *	72	Hand-held video game consoles	5
processing of food		Personal computing:		Hi-fi recorders and CD players *	84	Video games and game consoles *	
Electric heating appliances	42	Personal computers (CPU, mouse, screen and		Car Stereos *	20	Computers for biking, diving, running, rowing, etc.	
Electric radiators	6	keyboard included)		Audio amplifiers	23	Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating	1	CPU *	55	Speakers *	110	Coin slot machines	
furniture		Mouse *	13	Record turntables *	25	Toy Cars *	
Electric fans	38	Screen *		Musical instruments	8	Scooters *	
Air conditioner appliances		Keyboard *	38	And other products or equipment for the purpose of		Category 9 Monitoring and control instruments ⁽¹⁾	
Other fanning, exhaust ventilation & conditioning equipment	2	Laptop computers (CPU, mouse, screen and keyboard	3	recording or reproducing sound or images, including		Smoke detector	
Dehumidifiers *		included)		signals or other technologies for the distribution of		Heating regulators	
Category 2 Small household appliances		Notebook computers		sound or image than by telecommunications		Thermostats	
Vacuum cleaners	174	Notepad computers		Digital TV boxes *	27	Measuring, weighing or adjusting appliances for	
Carpet sweepers		Printers	46	Cameras *	11	household or as laboratory equipment	
Other appliances for cleaning		Copying equipment	52	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	
Appliances used for sewing, knitting, weaving and other		Electrical and electronic typewriters	3	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
processing for textiles		Pocket and desk calculators		industrial tools)			
Irons and other appliances for ironing, mangling and	57	and other equipment for the collection, storage		Drills	19	Items are as listed in the WEEE Directive	
other care of clothing		processing, presentation or communication of		Saws	7	Descriptions of items more specific than those listed in the	
Toasters and sandwich toasters *	58	information by electronic means		Sewing machines	5	Directive are marked with an asterisk ⁽¹⁾ not counted	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. KIN3	Source of Mixed WEEE Coventry	Blaydon Arrival Date 22nd November 2006	Net Mixed WEEE Tonnage 7.740 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	1594	20.6	Cables and plugs	256	3.3
Category 2 Small household appliances	1341	17.3	Batteries	0	0.0
Category 3 IT & telecommunications equipment	1180	15.2	Transformers	0	0.0
Category 4 Consumer equipment	1749	22.6	Non WEEE	566	7.3
Category 5 Lighting equipment	217	2.8	Unallocated material	34	0.4
Category 6 Electric & electronic goods	770	9.9			
Category 7 Toys, leisure & sports equipment	14	0.2	Total:	7740	100
Category 9 Monitoring & control instruments	20	0.3			

ITEM COUNT		Fryers	6	Disk drives *		Equipment for turning, milling, sanding, grinding, sawing	11
Category 1 Large household appliances		Kettles *	8	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
		Food Processors *	10	Facsimile	3	folding, bending or similar processing of wood, metal	
		Grinders, coffee machines and equipment for opening or sealing containers or packages	3	Telex		and other materials	
Large cooling appliances				Telephones	14	Tools for riveting, nailing or screwing or removing rivets, nails, screws or similar uses	
Refrigerators		Electric knives and knife sharpeners		Pay telephones		Tools for welding, soldering or similar use	
Freezers		Appliances for hair-cutting, hair drying, tooth brushing, shaving, massage and other body care applications	10	Cordless telephones		Equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means	5
Other large appliances used for refrigeration, conservation and storage of food		Clocks, watches and equipment for the purpose of measuring, indicating or registering time		Cellular telephones		Tools for mowing or other gardening activities	
Washing machines		Scales		Answering systems		Lawnmowers *	53
Clothes dryers	1	Category 3 IT and telecommunications equipment		and other products or equipment of transmitting sound, images or other information by telecommunications		Strimmers *	20
Dish washing machines		Centralised data processing:		Category 4 Consumer equipment		Hedgecutters *	4
Cooking	1	Mainframes		Radio sets	22	Category 7 Toys, leisure and sports equipment ⁽¹⁾	
Electric stoves		Minicomputers		Television sets		Electric trains or car racing sets	
Electric hot plates		Printer units		Videocameras	1	Hand-held video game consoles	
Microwaves	77	Personal computing:		Video recorders and DVD recorders *	91	Video games and game consoles *	
Other large appliances used for cooking and other processing of food		Personal computers (CPU, mouse, screen and keyboard included)		Hi-fi recorders and CD players *	78	Computers for biking, diving, running, rowing, etc.	
Electric heating appliances	34	CPU *	52	Car Stereos *	4	Sports equipment with electric or electronic components	
Electric radiators		Mouse *	12	Audio amplifiers	2	Coin slot machines	
Other large appliances for heating rooms, beds, seating furniture		Screen *		Speakers *	68	Toy Cars *	
Electric fans	12	Keyboard *	61	Record turntables *	7	Scooters *	
Air conditioner appliances		Laptop computers (CPU, mouse, screen and keyboard included)	1	Musical instruments	2	Category 9 Monitoring and control instruments ⁽¹⁾	
Other fanning, exhaust ventilation & conditioning equipment	2	Notebook computers		And other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound or image than by telecommunications		Smoke detector	
Dehumidifiers *		Notepad computers		Digital TV boxes *	6	Heating regulators	
Category 2 Small household appliances		Printers	46	Cameras *		Thermostats	
Vacuum cleaners	150	Copying equipment	10	Category 6 Electrical and electronic tools (with the exception of large-scale stationary industrial tools)		Measuring, weighing or adjusting appliances for household or as laboratory equipment	
Carpet sweepers		Electrical and electronic typewriters	5	Drills	5	Other monitoring and control instruments used in industrial installations (e.g. in control panels)	
Other appliances for cleaning		Pocket and desk calculators		Saws	3	Items are as listed in the WEEE Directive	
Appliances used for sewing, knitting, weaving and other processing for textiles		and other equipment for the collection, storage processing, presentation or communication of information by electronic means		Sewing machines	6	Descriptions of items more specific than those listed in the Directive are marked with an asterisk ⁽¹⁾ not counted	
Irons and other appliances for ironing, mangling and other care of clothing	29						
Toasters and sandwich toasters *	23						

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. KIN4	Source of Mixed WEEE Coventry	Blaydon Arrival Date 29th November 2006	Net Mixed WEEE Tonnage 11.419 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	1747	15.3	Cables and plugs	246	2.2
Category 2 Small household appliances	1926	16.9	Batteries	1	0.0
Category 3 IT & telecommunications equipment	2506	21.9	Transformers	0	0.0
Category 4 Consumer equipment	2704	23.7	Non WEEE	878	7.7
Category 5 Lighting equipment	208	1.8	Unallocated material	112	1.0
Category 6 Electric & electronic goods	995	8.7			
Category 7 Toys, leisure & sports equipment	39	0.3	Total:	11419	100
Category 9 Monitoring & control instruments	57	0.5			

ITEM COUNT		Fryers	5	Disk drives *		Equipment for turning, milling, sanding, grinding, sawing	20
Category 1 Large household appliances		Kettles *	16	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
		Food Processors *	8	Facsimile	5	folding, bending or similar processing of wood, metal	
	Large cooling appliances	Grinders, coffee machines and equipment for opening	4	Telex		and other materials	
	Refrigerators	or sealing containers or packages		Telephones	21	Tools for riveting, nailing or screwing or removing	
	Freezers	Electric knives and knife sharpeners		Pay telephones		rivets, nails, screws or similar uses	
	Other large appliances used for refrigeration, conservation	Appliances for hair-cutting, hair drying, tooth brushing,	10	Cordless telephones		Tools for welding, soldering or similar use	
	and storage of food	shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	6
	Washing machines	Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
	Clothes dryers	measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	
	Dish washing machines	Scales	1	images or other information by telecommunications		Lawnmowers *	60
Cooking	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Strimmers *	20	
Electric stoves	Centralised data processing:		Radio sets	15	Hedgecutters *	7	
Electric hot plates	Mainframes		Television sets		Category 7 Toys, leisure and sports equipment ⁽¹⁾		
Microwaves	82	Minicomputers		Videocameras	8	Electric trains or car racing sets	
Other large appliances used for cooking and other		Printer units		Video recorders and DVD recorders *	112	Hand-held video game consoles	
processing of food		Personal computing:		Hi-fi recorders and CD players *	100	Video games and game consoles *	
Electric heating appliances	24	Personal computers (CPU, mouse, screen and		Car Stereos *	2	Computers for biking, diving, running, rowing, etc.	
Electric radiators	9	keyboard included)		Audio amplifiers	5	Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating		CPU *	90	Speakers *	106	Coin slot machines	
furniture		Mouse *	13	Record turntables *	13	Toy Cars *	
Electric fans	16	Screen *		Musical instruments		Scooters *	
Air conditioner appliances	2	Keyboard *	66	And other products or equipment for the purpose of		Category 9 Monitoring and control instruments ⁽¹⁾	
Other fanning, exhaust ventilation & conditioning equipment		Laptop computers (CPU, mouse, screen and keyboard		recording or reproducing sound or images, including		Smoke detector	
Dehumidifiers *	4	included)		signals or other technologies for the distribution of		Heating regulators	
Category 2 Small household appliances		Notebook computers		sound or image than by telecommunications		Thermostats	
Vacuum cleaners	181	Notebook computers		Digital TV boxes *	16	Measuring, weighing or adjusting appliances for	
Carpet sweepers		Printers	80	Cameras *		household or as laboratory equipment	
Other appliances for cleaning		Copying equipment	20	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	
Appliances used for sewing, knitting, weaving and other		Electrical and electronic typewriters	6	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
processing for textiles		Pocket and desk calculators		industrial tools)			
Irons and other appliances for ironing, mangling and	37	and other equipment for the collection, storage		Drills	4	Items are as listed in the WEEE Directive	
other care of clothing		processing, presentation or communication of		Saws	5	Descriptions of items more specific than those listed in the	
Toasters and sandwich toasters *	35	information by electronic means		Sewing machines	3	Directive are marked with an asterisk ⁽¹⁾ not counted	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. ERI4	Source of Mixed WEEE Footscray and Crayford	Blaydon Arrival Date 6th December 2006	Net Mixed WEEE Tonnage 9.840 tonnes
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HAND SORT WEIGHTS					
Category		Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg) % of Mixed WEEE Load
Category 1	Large household appliances	729	7.4	Cables and plugs	12 0.1
Category 2	Small household appliances	1698	17.3	Batteries	0 0.0
Category 3	IT & telecommunications equipment	1987	20.2	Transformers	0 0.0
Category 4	Consumer equipment	2398	24.4	Non WEEE	1592 16.2
Category 5	Lighting equipment	268	2.7	Unallocated material	81 0.8
Category 6	Electric & electronic goods	928	9.4		
Category 7	Toys, leisure & sports equipment	36	0.4	Total:	9840 100
Category 9	Monitoring & control instruments	112	1.1		

ITEM COUNT							
		Fryers	12	Disk drives *	7	Equipment for turning, milling, sanding, grinding, sawing	29
		Kettles *	52	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances		Food Processors *	34	Facsimile	6	folding, bending or similar processing of wood, metal	
Large cooling appliances		Grinders, coffee machines and equipment for opening	3	Telex		and other materials	
Refrigerators	2	or sealing containers or packages		Telephones	49	Tools for riveting, nailing or screwing or removing	
Freezers		Electric knives and knife sharpeners	2	Pay telephones		rivets, nails, screws or similar uses	
Other large appliances used for refrigeration, conservation		Appliances for hair-cutting, hair drying, tooth brushing,	24	Cordless telephones		Tools for welding, soldering or similar use	
and storage of food		shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	12
Washing machines		Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
Clothes dryers		measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	
Dish washing machines		Scales	3	images or other information by telecommunications		Lawnmowers *	50
Cooking	3	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Strimmers *	12
Electric stoves		Centralised data processing:		Radio sets	51	Hedgecutters *	6
Electric hot plates		Mainframes		Television sets		Category 7 Toys, leisure and sports equipment ⁽¹⁾	
Microwaves	15	Minicomputers		Videocameras	3	Electric trains or car racing sets	
Other large appliances used for cooking and other		Printer units		Video recorders and DVD recorders *	90	Hand-held video game consoles	
processing of food		Personal computing:		Hi-fi recorders and CD players *	83	Video games and game consoles *	
Electric heating appliances	25	Personal computers (CPU, mouse, screen and		Car Stereos *	9	Computers for biking, diving, running, rowing, etc.	
Electric radiators	1	keyboard included)		Audio amplifiers	7	Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating	2	CPU *	100	Speakers *	65	Coin slot machines	
furniture		Mouse *	6	Record turntables *	9	Toy Cars *	
Electric fans	25	Screen *		Musical instruments	2	Scooters *	
Air conditioner appliances		Keyboard *	86	And other products or equipment for the purpose of	1	Category 9 Monitoring and control instruments ⁽¹⁾	
Other fanning, exhaust ventilation & conditioning equipment		Laptop computers (CPU, mouse, screen and keyboard	2	recording or reproducing sound or images, including		Smoke detector	
Dehumidifiers *	1	included)		signals or other technologies for the distribution of		Heating regulators	
Category 2 Small household appliances		Notebook computers		sound or image than by telecommunications		Thermostats	
Vacuum cleaners	160	Notepad computers		Digital TV boxes *	18	Measuring, weighing or adjusting appliances for	
Carpet sweepers		Printers	87	Cameras *	3	household or as laboratory equipment	
Other appliances for cleaning		Copying equipment	27	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	
Appliances used for sewing, knitting, weaving and other		Electrical and electronic typewriters	9	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
processing for textiles		Pocket and desk calculators		industrial tools)			
Irons and other appliances for ironing, mangling and	40	and other equipment for the collection, storage		Drills	10	Items are as listed in the WEEE Directive	
other care of clothing		processing, presentation or communication of		Saws	3	Descriptions of items more specific than those listed in the	
Toasters and sandwich toasters *	43	information by electronic means		Sewing machines	8	Directive are marked with an asterisk ⁽¹⁾ not counted	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. KIN5	Source of Mixed WEEE Coventry	Blaydon Arrival Date 21st December 2006	Net Mixed WEEE Tonnage 11.941 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	1697	14.2	Cables and plugs	223	1.9
Category 2 Small household appliances	1974	16.5	Batteries	1	0.0
Category 3 IT & telecommunications equipment	2235	18.7	Transformers	10	0.1
Category 4 Consumer equipment	2103	17.6	Non WEEE	2520	21.1
Category 5 Lighting equipment	104	0.9	Unallocated material	69	0.6
Category 6 Electric & electronic goods	950	8.0			
Category 7 Toys, leisure & sports equipment	30	0.3	Total:	11941	100
Category 9 Monitoring & control instruments	24	0.2			

ITEM COUNT		Fryers	14	Disk drives *	7	Equipment for turning, milling, sanding, grinding, sawing	9
Category 1 Large household appliances		Kettles *	20	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
		Food Processors *	11	Facsimile	4	folding, bending or similar processing of wood, metal	
	Large cooling appliances	Grinders, coffee machines and equipment for opening		Telex		and other materials	
	Refrigerators	or sealing containers or packages		Telephones	14	Tools for riveting, nailing or screwing or removing	
	Freezers	Electric knives and knife sharpeners		Pay telephones		rivets, nails, screws or similar uses	
	Other large appliances used for refrigeration, conservation	Appliances for hair-cutting, hair drying, tooth brushing,	7	Cordless telephones		Tools for welding, soldering or similar use	
	and storage of food	shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	3
	Washing machines	Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
	Clothes dryers	measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	
	Dish washing machines	Scales		images or other information by telecommunications		Lawnmowers *	65
Cooking	3	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Strimmers *	16
Electric stoves		Centralised data processing:		Radio sets	23	Hedgecutters *	2
Electric hot plates		Mainframes		Television sets		Category 7 Toys, leisure and sports equipment ⁽¹⁾	
Microwaves	71	Minicomputers		Videocameras	1	Electric trains or car racing sets	
Other large appliances used for cooking and other		Printer units		Video recorders and DVD recorders *	104	Hand-held video game consoles	
processing of food		Personal computing:		Hi-fi recorders and CD players *	88	Video games and game consoles *	
Electric heating appliances	34	Personal computers (CPU, mouse, screen and		Car Stereos *		Computers for biking, diving, running, rowing, etc.	
Electric radiators	5	keyboard included)		Audio amplifiers	9	Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating		CPU *	97	Speakers *	108	Coin slot machines	
furniture		Mouse *		Record turntables *	21	Toy Cars *	
Electric fans	12	Screen *	7	Musical instruments	2	Scooters *	
Air conditioner appliances		Keyboard *	68	And other products or equipment for the purpose of	4	Category 9 Monitoring and control instruments	
Other fanning, exhaust ventilation & conditioning equipment	3	Laptop computers (CPU, mouse, screen and keyboard		recording or reproducing sound or images, including		Smoke detector	
Dehumidifiers *	1	included)		signals or other technologies for the distribution of		Heating regulators	
Category 2 Small household appliances		Notebook computers		sound or image than by telecommunications		Thermostats	
Vacuum cleaners	180	Notepad computers		Digital TV boxes *	7	Measuring, weighing or adjusting appliances for	
Carpet sweepers		Printers	76	Cameras *		household or as laboratory equipment	
Other appliances for cleaning		Copying equipment	18	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	2
Appliances used for sewing, knitting, weaving and other		Electrical and electronic typewriters	6	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
processing for textiles		Pocket and desk calculators		industrial tools)			
Irons and other appliances for ironing, mangling and	26	and other equipment for the collection, storage		Drills	7	Items are as listed in the WEEE Directive	
other care of clothing		processing, presentation or communication of		Saws		Descriptions of items more specific than those listed in the	
Toasters and sandwich toasters *	38	information by electronic means		Sewing machines	3	Directive are marked with an asterisk ⁽¹⁾ not counted	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. SIMS3	Source of Mixed WEEE Wakefield & Doncaster	Blaydon Arrival Date 17th January 2007	Net Mixed WEEE Tonnage 8.720 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE Load	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE Load
Category 1 Large household appliances	642	7.4	Cables and plugs	144	1.7
Category 2 Small household appliances	1738	19.9	Batteries	0	0.0
Category 3 IT & telecommunications equipment	2303	26.4	Transformers	0	0.0
Category 4 Consumer equipment	2197	25.2	Non WEEE	776	8.9
Category 5 Lighting equipment	51	0.6	Unallocated material	24	0.3
Category 6 Electric & electronic goods	834	9.6			
Category 7 Toys, leisure & sports equipment	12	0.1	Total:	8720	100
Category 9 Monitoring & control instruments	0	0.0			

ITEM COUNT		Fryers	10	Disk drives *	2	Equipment for turning, milling, sanding, grinding, sawing	11
		Kettles *	10	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances		Food Processors *	10	Facsimile	5	folding, bending or similar processing of wood, metal and other materials	
Large cooling appliances		Grinders, coffee machines and equipment for opening or sealing containers or packages	2	Telex			
Refrigerators		Electric knives and knife sharpeners		Telephones	16	Tools for riveting, nailing or screwing or removing rivets, nails, screws or similar uses	
Freezers		Appliances for hair-cutting, hair drying, tooth brushing, shaving, massage and other body care applications	3	Pay telephones		Tools for welding, soldering or similar use	
Other large appliances used for refrigeration, conservation and storage of food		Clocks, watches and equipment for the purpose of measuring, indicating or registering time		Cordless telephones		Equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means	8
Washing machines		Scales		Cellular telephones		Tools for mowing or other gardening activities	
Clothes dryers				Answering systems		Lawnmowers *	18
Dish washing machines				and other products or equipment of transmitting sound, images or other information by telecommunications		Strimmers *	12
Cooking		Category 3 IT and telecommunications equipment				Hedgecutters *	3
Electric stoves		Centralised data processing:		Category 4 Consumer equipment			
Electric hot plates		Mainframes		Radio sets	16	Category 7 Toys, leisure and sports equipment ⁽¹⁾	
Microwaves	24	Minicomputers		Television sets		Electric trains or car racing sets	
Other large appliances used for cooking and other processing of food		Printer units		Videocameras		Hand-held video game consoles	
Electric heating appliances	24	Personal computing:		Video recorders and DVD recorders *	120	Video games and game consoles *	
Electric radiators	3	Personal computers (CPU, mouse, screen and keyboard included)		Hi-fi recorders and CD players *	135	Computers for biking, diving, running, rowing, etc.	
Other large appliances for heating rooms, beds, seating furniture		CPU *	103	Car Stereos *	10	Sports equipment with electric or electronic components	
Electric fans	4	Mouse *	10	Audio amplifiers	55	Coin slot machines	
Air conditioner appliances	2	Screen *		Record turntables *	17	Toy Cars *	
Other fanning, exhaust ventilation & conditioning equipment		Keyboard *	90	Musical instruments	3	Scooters *	
Dehumidifiers *		Laptop computers (CPU, mouse, screen and keyboard included)	8	And other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound or image than by telecommunications		Category 9 Monitoring and control instruments ⁽¹⁾	
Category 2 Small household appliances		Notebook computers		Digital TV boxes *	16	Smoke detector	
Vacuum cleaners	300	Notebook computers		Cameras *		Heating regulators	
Carpet sweepers		Printing equipment	130	Category 6 Electrical and electronic tools (with the exception of large-scale stationary industrial tools)		Thermostats	
Other appliances for cleaning		Electrical and electronic typewriters	35			Measuring, weighing or adjusting appliances for household or as laboratory equipment	
Appliances used for sewing, knitting, weaving and other processing for textiles		Pocket and desk calculators	8			Other monitoring and control instruments used in industrial installations (e.g. in control panels)	
Irons and other appliances for ironing, mangling and other care of clothing	12	and other equipment for the collection, storage processing, presentation or communication of information by electronic means		Drills	7	Items are as listed in the WEEE Directive	
Toasters and sandwich toasters *	30			Saws	3	Descriptions of items more specific than those listed in the	
				Sewing machines	2	Directive are marked with an asterisk ⁽¹⁾ not counted	

WINCANTON SHRED INFEED DATA

Load Ref. N/A	Source of WEEE Categories Blaydon	Wincanton Arrival Date 18th Dec 2006 to 6th Jan 2007	Net Mixed WEEE Tonnage 63.580 tonnes
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CATEGORY TONNAGES DELIVERED TO WINCANTON

Category	Total Weight (kg)
Category 2 Small household appliances	16320
Category 3 IT & telecommunications equipment	17780
Category 4 Consumer equipment	19200
Category 6 Electric & electronic goods	10280
Total:	63580

ESTIMATED NO. OF ITEMS					
		Laptop computers (CPU, mouse, screen and keyboard included)	21	And other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound or image than by telecommunications	8
Category 2 Small household appliances		Notebook computers			
Vacuum cleaners	2347	Notepad computers			
Carpet sweepers		Printers	988	Digital TV boxes *	168
Other appliances for cleaning		Copying equipment	271	Cameras *	23
Appliances used for sewing, knitting, weaving and other processing for textiles	10	Electrical and electronic typewriters	87	Category 6 Electrical and electronic tools (with the exception of large-scale stationary industrial tools)	
Irons and other appliances for ironing, mangling and other care of clothing	297	Pocket and desk calculators	3	Drills	122
Toasters	369	and other equipment for the collection, storage processing, presentation or communication of information by electronic means		Saws	43
Fryers	93	Disk drives	28	Sewing machines	65
Kettles *	277	User terminals and systems		Equipment for turning, milling, sanding, grinding, sawing cutting, shearing, drilling, making holes, punching, folding, bending or similar processing of wood, metal and other materials	243
Food Processors *	149	Facsimile	61	Tools for riveting, nailing or screwing or removing rivets, nails, screws or similar uses	2
Grinders, coffee machines and equipment for opening or sealing containers or packages	22	Telex		Tools for welding, soldering or similar use	1
Electric knives and knife sharpeners	6	Telephones	283	Equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means	85
Appliances for hair-cutting, hair drying, tooth brushing, shaving, massage and other body care applications	138	Pay telephones		Tools for mowing or other gardening activities	4
Clocks, watches and equipment for the purpose of measuring, indicating or registering time		Cordless telephones		Lawnmowers *	824
Scales	5	Cellular telephones		Strimmers *	292
Category 3 IT and telecommunications equipment		Answering systems		Hedgecutters *	56
Centralised data processing:		and other products or equipment of transmitting sound, images or other information by telecommunications			
Mainframes		Category 4 Consumer equipment			
Minicomputers		Radio sets	449		
Printer units		Television sets			
Personal computing:		Videocameras	29		
Personal computers (CPU, mouse, screen and keyboard included)		Video recorders and DVD recorders *	1340		
CPU *	1022	Hi-fi recorders and CD players *	1254		
Mouse *	124	Car Stereos *	131		
Screen *		Audio amplifiers	153		
Keyboard *	893	Speakers *	1208		
		Record turntables *	156		
		Musical instruments	38		

Items are as listed in the WEEE Directive
Descriptions of items more specific than those listed in the Directive are marked with an asterisk

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. Blackburn Summary	Source of Mixed WEEE Blackburn	Blaydon Arrival Date n/a	Net Mixed WEEE Tonnage 18.287 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE
Category 1 Large household appliances	8694	47.5	Cables and plugs	138	0.8
Category 2 Small household appliances	2198	12.0	Batteries	62	0.3
Category 3 IT & telecommunications equipment	1901	10.4	Transformers	0	0.0
Category 4 Consumer equipment	2106	11.5	Non WEEE	1608	8.8
Category 5 Lighting equipment	383	2.1	Unallocated material	97	0.5
Category 6 Electric & electronic goods	1039	5.7			
Category 7 Toys, leisure & sports equipment	40	0.2			
Category 9 Monitoring & control instruments	21	0.1	Total:	18287	100

ITEM COUNT					
	Fryers	13	<i>Disk drives *</i>	Equipment for turning, milling, sanding, grinding, sawing	24
	<i>Kettles *</i>	45	User terminals and systems	cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances	<i>Food Processors *</i>	12	Facsimile	folding, bending or similar processing of wood, metal	
Large cooling appliances	Grinders, coffee machines and equipment for opening	1	Telex	and other materials	
Refrigerators	or sealing containers or packages		Telephones	Tools for riveting, nailing or screwing or removing	2
Freezers	Electric knives <i>and knife sharpeners</i>	2	Pay telephones	rivets, nails, screws or similar uses	
Other large appliances used for refrigeration, conservation	Appliances for hair-cutting, hair drying, tooth brushing,	11	Cordless telephones	Tools for welding, soldering or similar use	1
and storage of food	shaving, massage and other body care applications		Cellular telephones	Equipment for spraying, spreading, dispersing or other	9
Washing machines	Clocks, watches and equipment for the purpose of		Answering systems	treatment of liquid or gaseous substances by other means	
Clothes dryers	measuring, indicating or registering time		and other products or equipment of transmitting sound,	Tools for mowing or other gardening activities	1
Dish washing machines	Scales		images or other information by telecommunications	<i>Lawnmowers *</i>	76
Cooking	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment	<i>Strimmers *</i>	26
Electric stoves	<i>Centralised data processing:</i>		Radio sets	<i>Hedgecutters *</i>	1
Electric hot plates	Mainframes		Television sets	Category 7 Toys, leisure and sports equipment	
Microwaves	Minicomputers		Videocameras	Electric trains or car racing sets	
Other large appliances used for cooking and other	Printer units		Video recorders <i>and DVD recorders *</i>	Hand-held video game consoles	
processing of food	<i>Personal computing:</i>		Hi-fi recorders <i>and CD players *</i>	Video games <i>and game consoles *</i>	2
Electric heating appliances	Personal computers (CPU, mouse, screen and		<i>Car Stereos *</i>	Computers for biking, diving, running, rowing, etc.	
Electric radiators	keyboard included)		Audio amplifiers	Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating	<i>CPU *</i>	72	<i>Speakers *</i>	Coin slot machines	
furniture	<i>Mouse *</i>	5	<i>Record turntables *</i>	<i>Toy Cars *</i>	
Electric fans	<i>Screen *</i>		Musical instruments	<i>Scooters *</i>	
Air conditioner appliances	<i>Keyboard *</i>	51	And other products or equipment for the purpose of	Category 9 Monitoring and control instruments	
Other fanning, exhaust ventilation & conditioning equipment	Laptop computers (CPU, mouse, screen and keyboard		recording or reproducing sound or images, including	Smoke detector	1
<i>Dehumidifiers *</i>	included)		signals or other technologies for the distribution of	Heating regulators	
Category 2 Small household appliances	Notebook computers		sound or image than by telecommunications	Thermostats	
Vacuum cleaners	Notepad computers		<i>Digital TV boxes *</i>	Measuring, weighing or adjusting appliances for	
Carpet sweepers	Printers	73	<i>Cameras *</i>	household or as laboratory equipment	
Other appliances for cleaning	Copying equipment	17	Category 6 Electrical and electronic tools	Other monitoring and control instruments used in	4
Appliances used for sewing, knitting, weaving and other	Electrical and electronic typewriters	6	(with the exception of large-scale stationary	industrial installations (e.g. in control panels)	
processing for textiles	Pocket and desk calculators	3	industrial tools)		
Irons and other appliances for ironing, mangling and	and other equipment for the collection, storage		Drills	<i>Items are as listed in the WEEE Directive</i>	
other care of clothing	processing, presentation or communication of		Saws	<i>Descriptions of items more specific than those listed in the</i>	
Toasters <i>and sandwich toasters *</i>	information by electronic means		Sewing machines	<i>Directive are marked with an asterisk</i>	

Load Ref. Blackburn Small WEEE Summary	Source of Mixed WEEE Blackburn	Blaydon Arrival Date n/a	Net Mixed WEEE Tonnage 12.688 tonnes
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ITEM COUNT	Fryers	13	Disk drives *	Equipment for turning, milling, sanding, grinding, sawing	24
	Kettles *	45	User terminals and systems	cutting, shearing, drilling, making holes, punching,	
	Category 1 Large household appliances	Food Processors *	12	Facsimile	

Large cooling appliances		Grinders, coffee machines and equipment for opening or sealing containers or packages	1	Telex		and other materials	
Refrigerators		Electric knives <i>and knife sharpeners</i>	2	Telephones	27	Tools for riveting, nailing or screwing or removing rivets, nails, screws or similar uses	2
Freezers		Appliances for hair-cutting, hair drying, tooth brushing, shaving, massage and other body care applications	11	Pay telephones			
Other large appliances used for refrigeration, conservation and storage of food		Clocks, watches and equipment for the purpose of measuring, indicating or registering time		Cordless telephones		Tools for welding, soldering or similar use	1
Washing machines		Scales		Cellular telephones		Equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means	9
Clothes dryers		Category 3 IT and telecommunications equipment		Answering systems		Tools for mowing or other gardening activities	1
Dish washing machines		<i>Centralised data processing:</i>		and other products or equipment of transmitting sound, images or other information by telecommunications		<i>Lawnmowers *</i>	76
Cooking		Mainframes		Category 4 Consumer equipment		<i>Strimmers *</i>	26
Electric stoves		Minicomputers		Radio sets	23	<i>Hedgecutters *</i>	1
Electric hot plates	1	Printer units		Television sets	1	Category 7 Toys, leisure and sports equipment	
Microwaves	136	<i>Personal computing:</i>		Videocameras	2	Electric trains or car racing sets	
Other large appliances used for cooking and other processing of food		Personal computers (CPU, mouse, screen and keyboard included)		Video recorders <i>and DVD recorders *</i>	48	Hand-held video game consoles	
Electric heating appliances	33	<i>CPU *</i>		Hi-fi recorders <i>and CD players *</i>	91	Video games <i>and game consoles *</i>	2
Electric radiators	10	<i>Mouse *</i>		<i>Car Stereos *</i>	4	Computers for biking, diving, running, rowing, etc.	
Other large appliances for heating rooms, beds, seating furniture	2	<i>Screen *</i>	72	Audio amplifiers	13	Sports equipment with electric or electronic components	
Electric fans	18	<i>Keyboard *</i>	5	<i>Speakers *</i>	88	Coin slot machines	
Air conditioner appliances	1	Laptop computers (CPU, mouse, screen and keyboard included)	51	<i>Record turntables *</i>	19	<i>Toy Cars *</i>	
Other fanning, exhaust ventilation & conditioning equipment	1	Notebook computers		Musical instruments	2	<i>Scooters *</i>	
<i>Dehumidifiers *</i>		Notepad computers		And other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound or image than by telecommunications		Category 9 Monitoring and control instruments	
Category 2 Small household appliances		Printers		<i>Digital TV boxes *</i>	9	Smoke detector	1
Vacuum cleaners	219	Copying equipment	73	<i>Cameras *</i>	7	Heating regulators	
Carpet sweepers		Electrical and electronic typewriters	17	Category 6 Electrical and electronic tools (with the exception of large-scale stationary industrial tools)		Thermostats	
Other appliances for cleaning		Pocket and desk calculators	6			Measuring, weighing or adjusting appliances for household or as laboratory equipment	
Appliances used for sewing, knitting, weaving and other processing for textiles	11	and other equipment for the collection, storage processing, presentation or communication of information by electronic means	3			Other monitoring and control instruments used in industrial installations (e.g. in control panels)	4
Irons and other appliances for ironing, mangling and other care of clothing	11			Drills	13	<i>Items are as listed in the WEEE Directive</i>	
Toasters <i>and sandwich toasters *</i>	55			Saws	5	<i>Descriptions of items more specific than those listed in the Directive are marked with an asterisk</i>	
				Sewing machines	3		

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. Wakefield & Doncaster Summary	Source of Mixed WEEE Wakefield & Doncaster	Blaydon Arrival Date n/a	Net Mixed WEEE Tonnage 28.460 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE
Category 1 Large household appliances	1263	4.4	Cables and plugs	345	1.2
Category 2 Small household appliances	7653	26.9	Batteries	0	0.0
Category 3 IT & telecommunications equipment	7567	26.6	Transformers	0	0.0
Category 4 Consumer equipment	7029	24.7	Non WEEE	1537	5.4
Category 5 Lighting equipment	211	0.7	Unallocated material	105	0.4
Category 6 Electric & electronic goods	2487	8.7			
Category 7 Toys, leisure & sports equipment	36	0.1			
Category 9 Monitoring & control instruments	228	0.8	Total:	28460	100

ITEM COUNT		Fryers	24	Disk drives *	2	Equipment for turning, milling, sanding, grinding, sawing	45
		Kettles *	32	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances		Food Processors *	18	Facsimile	13	folding, bending or similar processing of wood, metal	
Large cooling appliances		Grinders, coffee machines and equipment for opening	9	Telex		and other materials	
Refrigerators		or sealing containers or packages		Telephones	56	Tools for riveting, nailing or screwing or removing	
Freezers		Electric knives and knife sharpeners		Pay telephones		rivets, nails, screws or similar uses	
Other large appliances used for refrigeration, conservation		Appliances for hair-cutting, hair drying, tooth brushing,	11	Cordless telephones		Tools for welding, soldering or similar use	
and storage of food		shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	23
Washing machines		Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
Clothes dryers		measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	
Dish washing machines		Scales		images or other information by telecommunications		Lawnmowers *	149
Cooking	2	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Strimmers *	73
Electric stoves		Centralised data processing:		Radio sets	86	Hedgecutters *	20
Electric hot plates		Mainframes		Television sets		Category 7 Toys, leisure and sports equipment	
Microwaves	30	Minicomputers		Videocameras	4	Electric trains or car racing sets	
Other large appliances used for cooking and other		Printer units		Video recorders and DVD recorders *	476	Hand-held video game consoles	
processing of food		Personal computing:		Hi-fi recorders and CD players *	370	Video games and game consoles *	
Electric heating appliances	55	Personal computers (CPU, mouse, screen and		Car Stereos *	26	Computers for biking, diving, running, rowing, etc.	
Electric radiators	8	keyboard included)		Audio amplifiers	36	Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating		CPU *	374	Speakers *	255	Coin slot machines	
furniture		Mouse *	27	Record turntables *	17	Toy Cars *	
Electric fans	30	Screen *		Musical instruments	10	Scooters *	
Air conditioner appliances	2	Keyboard *	356	And other products or equipment for the purpose of		Category 9 Monitoring and control instruments	
Other fanning, exhaust ventilation & conditioning equipment		Laptop computers (CPU, mouse, screen and keyboard	10	recording or reproducing sound or images, including		Smoke detector	
Dehumidifiers *		included)		signals or other technologies for the distribution of		Heating regulators	
Category 2 Small household appliances		Notebook computers		sound or image than by telecommunications		Thermostats	
Vacuum cleaners	989	Notepad computers		Digital TV boxes *	51	Measuring, weighing or adjusting appliances for	
Carpet sweepers		Printers	387	Cameras *		household or as laboratory equipment	
Other appliances for cleaning		Copying equipment	70	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	
Appliances used for sewing, knitting, weaving and other		Electrical and electronic typewriters	17	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
processing for textiles		Pocket and desk calculators		industrial tools)			
Irons and other appliances for ironing, mangling and	53	and other equipment for the collection, storage		Drills	18	Items are as listed in the WEEE Directive	
other care of clothing		processing, presentation or communication of		Saws	12	Descriptions of items more specific than those listed in the	
Toasters and sandwich toasters *	79	information by electronic means		Sewing machines	5	Directive are marked with an asterisk	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref.	Source of Mixed WEEE	Blaydon Arrival Date	Net Mixed WEEE Tonnage
Wakefield & Doncaster Small WEEE Summary	Wakefield & Doncaster	n/a	28.410 tonnes

HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE
Category 1 Small category 1 items	1213	4.3	Cables and plugs	345	1.2
Category 2 Small household appliances	7653	26.9	Batteries	0	0.0
Category 3 IT & telecommunications equipment	7567	26.6	Transformers	0	0.0
Category 4 Consumer equipment	7029	24.7	Non WEEE	1537	5.4
Category 5 Lighting equipment	211	0.7	Unallocated material	105	0.4
Category 6 Electric & electronic goods	2487	8.8			
Category 7 Toys, leisure & sports equipment	36	0.1	Total:	28410	100
Category 9 Monitoring & control instruments	228	0.8			

ITEM COUNT		Fryers	24	Disk drives *	2	Equipment for turning, milling, sanding, grinding, sawing	45
		Kettles *	32	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances		Food Processors *	18	Facsimile	13	folding, bending or similar processing of wood, metal	
Large cooling appliances		Grinders, coffee machines and equipment for opening	9	Telex		and other materials	
Refrigerators		or sealing containers or packages		Telephones	56	Tools for riveting, nailing or screwing or removing	
Freezers		Electric knives and knife sharpeners		Pay telephones		rivets, nails, screws or similar uses	
Other large appliances used for refrigeration, conservation		Appliances for hair-cutting, hair drying, tooth brushing,	11	Cordless telephones		Tools for welding, soldering or similar use	
and storage of food		shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	23
Washing machines		Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
Clothes dryers		measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	
Dish washing machines		Scales		images or other information by telecommunications		Lawnmowers *	149
Cooking		Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Strimmers *	73
Electric stoves		Centralised data processing:		Radio sets	86	Hedgecutters *	20
Electric hot plates		Mainframes		Television sets		Category 7 Toys, leisure and sports equipment	
Microwaves	30	Minicomputers		Videocameras	4	Electric trains or car racing sets	
Other large appliances used for cooking and other		Printer units		Video recorders and DVD recorders *	476	Hand-held video game consoles	
processing of food		Personal computing:		Hi-fi recorders and CD players *	370	Video games and game consoles *	
Electric heating appliances	55	Personal computers (CPU, mouse, screen and		Car Stereos *	26	Computers for biking, diving, running, rowing, etc.	
Electric radiators	8	keyboard included)		Audio amplifiers	36	Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating		CPU *	374	Speakers *	255	Coin slot machines	
furniture		Mouse *	27	Record turntables *	17	Toy Cars *	
Electric fans	30	Screen *		Musical instruments	10	Scooters *	
Air conditioner appliances	2	Keyboard *	356	And other products or equipment for the purpose of		Category 9 Monitoring and control instruments	
Other fanning, exhaust ventilation & conditioning equipment		Laptop computers (CPU, mouse, screen and keyboard	10	recording or reproducing sound or images, including		Smoke detector	
Dehumidifiers *		included)		signals or other technologies for the distribution of		Heating regulators	
Category 2 Small household appliances		Notebook computers		sound or image than by telecommunications		Thermostats	
Vacuum cleaners	989	Notepad computers		Digital TV boxes *	51	Measuring, weighing or adjusting appliances for	
Carpet sweepers		Printers	387	Cameras *		household or as laboratory equipment	
Other appliances for cleaning		Copying equipment	70	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	
Appliances used for sewing, knitting, weaving and other		Electrical and electronic typewriters	17	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
processing for textiles		Pocket and desk calculators		industrial tools)			
Irons and other appliances for ironing, mangling and	53	and other equipment for the collection, storage		Drills	18	Items are as listed in the WEEE Directive	
other care of clothing		processing, presentation or communication of		Saws	12	Descriptions of items more specific than those listed in the	
Toasters and sandwich toasters *	79	information by electronic means		Sewing machines	5	Directive are marked with an asterisk	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. Footscray and Crayford Summary	Source of Mixed WEEE Footscray and Crayford	Blaydon Arrival Date n/a	Net Mixed WEEE Tonnage 40.277 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE
Category 1 Large household appliances	3269	8.1	Cables and plugs	155	0.4
Category 2 Small household appliances	7129	17.7	Batteries	44	0.1
Category 3 IT & telecommunications equipment	10460	26.0	Transformers	14	0.0
Category 4 Consumer equipment	8798	21.8	Non WEEE	4009	10.0
Category 5 Lighting equipment	1028	2.6	Unallocated material	242	0.6
Category 6 Electric & electronic goods	4494	11.2			
Category 7 Toys, leisure & sports equipment	239	0.6	Total:	40277	100
Category 9 Monitoring & control instruments	396	1.0			

ITEM COUNT		Fryers	42	Disk drives *	23	Equipment for turning, milling, sanding, grinding, sawing	85
Category 1 Large household appliances		Kettles *	170	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
	Large cooling appliances	Food Processors *	94	Facsimile	34	folding, bending or similar processing of wood, metal	
		Refrigerators	Grinders, coffee machines and equipment for opening	9	Telex		and other materials
	Freezers	or sealing containers or packages		Telephones	169	Tools for riveting, nailing or screwing or removing	
	Other large appliances used for refrigeration, conservation and storage of food	Electric knives and knife sharpeners	5	Pay telephones		rivets, nails, screws or similar uses	
		Appliances for hair-cutting, hair drying, tooth brushing, shaving, massage and other body care applications	104	Cordless telephones		Tools for welding, soldering or similar use	
	Washing machines	Clocks, watches and equipment for the purpose of		Cellular telephones		Equipment for spraying, spreading, dispersing or other	23
	Clothes dryers	measuring, indicating or registering time		Answering systems		treatment of liquid or gaseous substances by other means	
	Dish washing machines	Scales	5	and other products or equipment of transmitting sound, images or other information by telecommunications		Tools for mowing or other gardening activities	3
	Cooking	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Lawnmowers *	260
Electric stoves	Centralised data processing:		Radio sets	218	Strimmers *	88	
Electric hot plates	1	Mainframes	Television sets		Hedgecutters *	20	
Microwaves	63	Minicomputers	Videocameras	8	Category 7 Toys, leisure and sports equipment		
Other large appliances used for cooking and other processing of food		Printer units	Video recorders and DVD recorders *	279	Electric trains or car racing sets		
	Electric heating appliances	Personal computing:	Hi-fi recorders and CD players *	329	Hand-held video game consoles	7	
Electric radiators	120	Personal computers (CPU, mouse, screen and keyboard included)	Car Stereos *	85	Video games and game consoles *	5	
Other large appliances for heating rooms, beds, seating furniture	4	CPU *	Audio amplifiers	71	Computers for biking, diving, running, rowing, etc.	3	
Electric fans	129	Mouse *	Speakers *	370	Sports equipment with electric or electronic components		
Air conditioner appliances		Screen *	Record turntables *	67	Coin slot machines		
Other fanning, exhaust ventilation & conditioning equipment	3	Keyboard *	Musical instruments	17	Toy Cars *	6	
Dehumidifiers *	11	Laptop computers (CPU, mouse, screen and keyboard included)	And other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound or image than by telecommunications	3	Scooters *	6	
Category 2 Small household appliances		Notebook computers	Digital TV boxes *		Category 9 Monitoring and control instruments		
	Vacuum cleaners	673	Cameras *	60	Smoke detector		
	Carpet sweepers		Category 6 Electrical and electronic tools (with the exception of large-scale stationary industrial tools)	14	Heating regulators		
	Other appliances for cleaning		Drills		Thermostats		
	Appliances used for sewing, knitting, weaving and other processing for textiles		Saws	56	Measuring, weighing or adjusting appliances for household or as laboratory equipment		
	Irons and other appliances for ironing, mangling and other care of clothing	145	Sewing machines	13	Other monitoring and control instruments used in industrial installations (e.g. in control panels)	19	
	Toasters and sandwich toasters *	183		37	Items are as listed in the WEEE Directive		
					Descriptions of items more specific than those listed in the Directive are marked with an asterisk		

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref.	Source of Mixed WEEE	Blaydon Arrival Date	Net Mixed WEEE Tonnage
Footscray and Crayford Small WEEE Summary	Footscray and Crayford	n/a	39.427 tonnes

HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE
Category 1 Small category 1 items	2419	6.1	Cables and plugs	155	0.4
Category 2 Small household appliances	7129	18.1	Batteries	44	0.1
Category 3 IT & telecommunications equipment	10460	26.5	Transformers	14	0.0
Category 4 Consumer equipment	8798	22.3	Non WEEE	4009	10.2
Category 5 Lighting equipment	1028	2.6	Unallocated material	242	0.6
Category 6 Electric & electronic goods	4494	11.4			
Category 7 Toys, leisure & sports equipment	239	0.6	Total:	39427	100
Category 9 Monitoring & control instruments	396	1.0			

ITEM COUNT	Fryers	42	<i>Disk drives *</i>	23	Equipment for turning, milling, sanding, grinding, sawing	85
Category 1 Large household appliances	<i>Kettles *</i>	170	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Large cooling appliances	<i>Food Processors *</i>	94	Facsimile	34	folding, bending or similar processing of wood, metal	
Refrigerators	Grinders, coffee machines and equipment for opening	9	Telex		and other materials	
Freezers	or sealing containers or packages		Telephones	169	Tools for riveting, nailing or screwing or removing	
Other large appliances used for refrigeration, conservation	<i>Electric knives and knife sharpeners</i>	5	Pay telephones		rivets, nails, screws or similar uses	
and storage of food	Appliances for hair-cutting, hair drying, tooth brushing,	104	Cordless telephones		Tools for welding, soldering or similar use	
Washing machines	shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	23
Clothes dryers	Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
Dish washing machines	measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	3
Cooking	Scales	5	images or other information by telecommunications		<i>Lawnmowers *</i>	260
Electric stoves	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		<i>Strimmers *</i>	88
Electric hot plates	<i>Centralised data processing:</i>		Radio sets	218	<i>Hedgecutters *</i>	20
Microwaves	Mainframes		Television sets		Category 7 Toys, leisure and sports equipment	
Other large appliances used for cooking and other	Minicomputers		Videocameras	8	Electric trains or car racing sets	
processing of food	Printer units		Video recorders <i>and DVD recorders *</i>	279	Hand-held video game consoles	7
Electric heating appliances	<i>Personal computing:</i>		Hi-fi recorders <i>and CD players *</i>	329	Video games <i>and game consoles *</i>	5
Electric radiators	Personal computers (CPU, mouse, screen and		<i>Car Stereos *</i>	85	Computers for biking, diving, running, rowing, etc.	3
Other large appliances for heating rooms, beds, seating	keyboard included)		Audio amplifiers	71	Sports equipment with electric or electronic components	
furniture	<i>CPU *</i>	365	<i>Speakers *</i>	370	Coin slot machines	
Electric fans	<i>Mouse *</i>	47	<i>Record turntables *</i>	67	<i>Toy Cars *</i>	6
Air conditioner appliances	<i>Screen *</i>	1	Musical instruments	17	<i>Scooters *</i>	6
Other fanning, exhaust ventilation & conditioning equipment	<i>Keyboard *</i>	322	And other products or equipment for the purpose of	3	Category 9 Monitoring and control instruments	
<i>Dehumidifiers *</i>	Laptop computers (CPU, mouse, screen and keyboard	13	recording or reproducing sound or images, including		Smoke detector	
Category 2 Small household appliances	included)		signals or other technologies for the distribution of		Heating regulators	
Vacuum cleaners	Notebook computers		sound or image than by telecommunications		Thermostats	
Carpet sweepers	Notepad computers		<i>Digital TV boxes *</i>	60	Measuring, weighing or adjusting appliances for	
Other appliances for cleaning	Printers	384	<i>Cameras *</i>	14	household or as laboratory equipment	
Appliances used for sewing, knitting, weaving and other	Copying equipment	143	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	19
processing for textiles	Electrical and electronic typewriters	47	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
Irons and other appliances for ironing, mangling and	Pocket and desk calculators	1	industrial tools)			
other care of clothing	and other equipment for the collection, storage		Drills	56	<i>Items are as listed in the WEEE Directive</i>	
Toasters <i>and sandwich toasters *</i>	processing, presentation or communication of		Saws	13	<i>Descriptions of items more specific than those listed in the</i>	
	information by electronic means		Sewing machines	37	<i>Directive are marked with an asterisk</i>	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. Coventry Summary	Source of Mixed WEEE Coventry	Blaydon Arrival Date n/a	Net Mixed WEEE Tonnage 45.143 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE
Category 1 Large household appliances	6929	15.3	Cables and plugs	1039	2.3
Category 2 Small household appliances	7848	17.4	Batteries	60	0.1
Category 3 IT & telecommunications equipment	8395	18.6	Transformers	19	0.0
Category 4 Consumer equipment	9764	21.6	Non WEEE	5203	11.5
Category 5 Lighting equipment	832	1.8	Unallocated material	311	0.7
Category 6 Electric & electronic goods	4496	10.0			
Category 7 Toys, leisure & sports equipment	99	0.2			
Category 9 Monitoring & control instruments	147	0.3	Total:	45143	100

ITEM COUNT	Fryers	29	Disk drives *	7	Equipment for turning, milling, sanding, grinding, sawing	80
Category 1 Large household appliances	Kettles *	73	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Large cooling appliances	Food Processors *	48	Facsimile	19	folding, bending or similar processing of wood, metal	
Refrigerators	Grinders, coffee machines and equipment for opening	7	Telex		and other materials	
Freezers	or sealing containers or packages		Telephones	73	Tools for riveting, nailing or screwing or removing	
Other large appliances used for refrigeration, conservation	Electric knives and knife sharpeners		Pay telephones		rivets, nails, screws or similar uses	
and storage of food	Appliances for hair-cutting, hair drying, tooth brushing,	34	Cordless telephones		Tools for welding, soldering or similar use	
Washing machines	shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	27
Clothes dryers	Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
Dish washing machines	measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	
Cooking	Scales	1	images or other information by telecommunications		Lawnmowers *	309
Electric stoves	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Strimmers *	94
Electric hot plates	Centralised data processing:		Radio sets	101	Hedgecutters *	13
Microwaves	Mainframes		Television sets		Category 7 Toys, leisure and sports equipment	
Other large appliances used for cooking and other	Minicomputers		Videocameras	14	Electric trains or car racing sets	
processing of food	Printer units		Video recorders and DVD recorders *	475	Hand-held video game consoles	
Electric heating appliances	Personal computing:		Hi-fi recorders and CD players *	406	Video games and game consoles *	3
Electric radiators	Personal computers (CPU, mouse, screen and		Car Stereos *	10	Computers for biking, diving, running, rowing, etc.	
Other large appliances for heating rooms, beds, seating	keyboard included)		Audio amplifiers	26	Sports equipment with electric or electronic components	
furniture	CPU *	364	Speakers *	439	Coin slot machines	
Electric fans	Mouse *	63	Record turntables *	46	Toy Cars *	
Air conditioner appliances	Screen *	11	Musical instruments	7	Scooters *	
Other fanning, exhaust ventilation & conditioning equipment	Keyboard *	297	And other products or equipment for the purpose of	5	Category 9 Monitoring and control instruments	
Dehumidifiers *	Laptop computers (CPU, mouse, screen and keyboard	1	recording or reproducing sound or images, including		Smoke detector	
Category 2 Small household appliances	included)		signals or other technologies for the distribution of		Heating regulators	
Vacuum cleaners	Notebook computers		sound or image than by telecommunications		Thermostats	
Carpet sweepers	Notepad computers		Digital TV boxes *	40	Measuring, weighing or adjusting appliances for	
Other appliances for cleaning	Printers	291	Cameras *	1	household or as laboratory equipment	
Appliances used for sewing, knitting, weaving and other	Copying equipment	81	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	13
processing for textiles	Electrical and electronic typewriters	30	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
Irons and other appliances for ironing, mangling and	Pocket and desk calculators		industrial tools)			
other care of clothing	and other equipment for the collection, storage		Drills	31	Items are as listed in the WEEE Directive	
Toasters and sandwich toasters *	processing, presentation or communication of		Saws	11	Descriptions of items more specific than those listed in the	
	information by electronic means		Sewing machines	18	Directive are marked with an asterisk	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. Coventry Small WEEE Summary	Source of Mixed WEEE Coventry	Blaydon Arrival Date n/a	Net Mixed WEEE Tonnage 44.379 tonnes
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HAND SORT WEIGHTS

Category	Total Weight (kg)	% of Mixed WEEE	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE
Category 1 Small category 1 items	6165	13.9	Cables and plugs	1039	2.3
Category 2 Small household appliances	7848	17.7	Batteries	60	0.1
Category 3 IT & telecommunications equipment	8395	18.9	Transformers	19	0.0
Category 4 Consumer equipment	9764	22.0	Non WEEE	5203	11.7
Category 5 Lighting equipment	832	1.9	Unallocated material	311	0.7
Category 6 Electric & electronic goods	4496	10.1			
Category 7 Toys, leisure & sports equipment	99	0.2	Total:	44379	100
Category 9 Monitoring & control instruments	147	0.3			

ITEM COUNT	Fryers	29	Disk drives *	7	Equipment for turning, milling, sanding, grinding, sawing	80
Category 1 Large household appliances	Kettles *	73	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Large cooling appliances	Food Processors *	48	Facsimile	19	folding, bending or similar processing of wood, metal	
Refrigerators	Grinders, coffee machines and equipment for opening	7	Telex		and other materials	
Freezers	or sealing containers or packages		Telephones	73	Tools for riveting, nailing or screwing or removing	
Other large appliances used for refrigeration, conservation	Electric knives and knife sharpeners		Pay telephones		rivets, nails, screws or similar uses	
and storage of food	Appliances for hair-cutting, hair drying, tooth brushing,	34	Cordless telephones		Tools for welding, soldering or similar use	
Washing machines	shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	27
Clothes dryers	Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
Dish washing machines	measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	
Cooking	Scales	1	images or other information by telecommunications		Lawnmowers *	309
Electric stoves	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Strimmers *	94
Electric hot plates	Centralised data processing:		Radio sets	101	Hedgecutters *	13
Microwaves	Mainframes		Television sets		Category 7 Toys, leisure and sports equipment	
Other large appliances used for cooking and other	Minicomputers		Videocameras	14	Electric trains or car racing sets	
processing of food	Printer units		Video recorders and DVD recorders *	475	Hand-held video game consoles	
Electric heating appliances	Personal computing:		Hi-fi recorders and CD players *	406	Video games and game consoles *	3
Electric radiators	Personal computers (CPU, mouse, screen and		Car Stereos *	10	Computers for biking, diving, running, rowing, etc.	
Other large appliances for heating rooms, beds, seating	keyboard included)		Audio amplifiers	26	Sports equipment with electric or electronic components	
furniture	CPU *	364	Speakers *	439	Coin slot machines	
Electric fans	Mouse *	63	Record turntables *	46	Toy Cars *	
Air conditioner appliances	Screen *	11	Musical instruments	7	Scooters *	
Other fanning, exhaust ventilation & conditioning equipment	Keyboard *	297	And other products or equipment for the purpose of	5	Category 9 Monitoring and control instruments	
Dehumidifiers *	Laptop computers (CPU, mouse, screen and keyboard	1	recording or reproducing sound or images, including		Smoke detector	
Category 2 Small household appliances	included)		signals or other technologies for the distribution of		Heating regulators	
Vacuum cleaners	Notebook computers		sound or image than by telecommunications		Thermostats	
Carpet sweepers	Notepad computers		Digital TV boxes *	40	Measuring, weighing or adjusting appliances for	
Other appliances for cleaning	Printers	291	Cameras *	1	household or as laboratory equipment	
Appliances used for sewing, knitting, weaving and other	Copying equipment	81	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	13
processing for textiles	Electrical and electronic typewriters	30	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
Irons and other appliances for ironing, mangling and	Pocket and desk calculators		industrial tools)			
other care of clothing	and other equipment for the collection, storage		Drills	31	Items are as listed in the WEEE Directive	
Toasters and sandwich toasters *	processing, presentation or communication of		Saws	11	Descriptions of items more specific than those listed in the	
	information by electronic means		Sewing machines	18	Directive are marked with an asterisk	

Load Ref. All Load Summary	Source of Mixed WEEE All Participating CA Sites	Blaydon Arrival Date n/a	Net Mixed WEEE Tonnage 132.167 tonnes
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ITEM COUNT							
		Fryers	108	Disk drives *	32	Equipment for turning, milling, sanding, grinding, sawing	234
		Kettles *	320	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances		Food Processors *	172	Facsimile	70	folding, bending or similar processing of wood, metal	
Large cooling appliances		Grinders, coffee machines and equipment for opening	26	Telex		and other materials	
Refrigerators	6	or sealing containers or packages		Telephones	325	Tools for riveting, nailing or screwing or removing	2
Freezers	4	Electric knives and knife sharpeners	7	Pay telephones		rivets, nails, screws or similar uses	
Other large appliances used for refrigeration, conservation		Appliances for hair-cutting, hair drying, tooth brushing,	160	Cordless telephones		Tools for welding, soldering or similar use	1
and storage of food		shaving, massage and other body care applications		Cellular telephones		Equipment for spraying, spreading, dispersing or other	82
Washing machines	62	Clocks, watches and equipment for the purpose of		Answering systems		treatment of liquid or gaseous substances by other means	
Clothes dryers	33	measuring, indicating or registering time		and other products or equipment of transmitting sound,		Tools for mowing or other gardening activities	4
Dish washing machines	12	Scales	6	images or other information by telecommunications		Lawnmowers *	794
Cooking	53	Category 3 IT and telecommunications equipment		Category 4 Consumer equipment		Strimmers *	281
Electric stoves	8	Centralised data processing:		Radio sets	428	Hedgecutters *	54
Electric hot plates	4	Mainframes		Television sets	1	Category 7 Toys, leisure and sports equipment	
Microwaves	536	Minicomputers		Videocameras	28	Electric trains or car racing sets	
Other large appliances used for cooking and other		Printer units		Video recorders and DVD recorders *	1278	Hand-held video game consoles	7
processing of food		Personal computing:		Hi-fi recorders and CD players *	1196	Video games and game consoles *	10
Electric heating appliances	364	Personal computers (CPU, mouse, screen and		Car Stereos *	125	Computers for biking, diving, running, rowing, etc.	3
Electric radiators	72	keyboard included)		Audio amplifiers	146	Sports equipment with electric or electronic components	
Other large appliances for heating rooms, beds, seating	6	CPU *	1175	Speakers *	1152	Coin slot machines	
furniture		Mouse *	142	Record turntables *	149	Toy Cars *	6
Electric fans	264	Screen *	12	Musical instruments	36	Scooters *	6
Air conditioner appliances	6	Keyboard *	1026	And other products or equipment for the purpose of	8	Category 9 Monitoring and control instruments	
Other fanning, exhaust ventilation & conditioning equipment	9	Laptop computers (CPU, mouse, screen and keyboard	24	recording or reproducing sound or images, including		Smoke detector	1
Dehumidifiers *	19	included)		signals or other technologies for the distribution of		Heating regulators	
Category 2 Small household appliances		Notebook computers		sound or image than by telecommunications		Thermostats	
Vacuum cleaners	2713	Notepad computers		Digital TV boxes *	160	Measuring, weighing or adjusting appliances for	
Carpet sweepers		Printers	1135	Cameras *	22	household or as laboratory equipment	
Other appliances for cleaning		Copying equipment	311	Category 6 Electrical and electronic tools		Other monitoring and control instruments used in	36
Appliances used for sewing, knitting, weaving and other	11	Electrical and electronic typewriters	100	(with the exception of large-scale stationary		industrial installations (e.g. in control panels)	
processing for textiles		Pocket and desk calculators	4	industrial tools)			
Irons and other appliances for ironing, mangling and	343	and other equipment for the collection, storage		Drills	118	Items are as listed in the WEEE Directive	
other care of clothing		processing, presentation or communication of		Saws	41	Descriptions of items more specific than those listed in the	
Toasters and sandwich toasters *	427	information by electronic means		Sewing machines	63	Directive are marked with an asterisk	

BLAYDON HAND SORT DATA FOR MIXED WEEE

Load Ref. All Load Small WEEE Summary	Source of Mixed WEEE All Participating CA Sites	Blaydon Arrival Date n/a	Net Mixed WEEE Tonnage 124.904 tonnes
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HAND SORT WEIGHTS

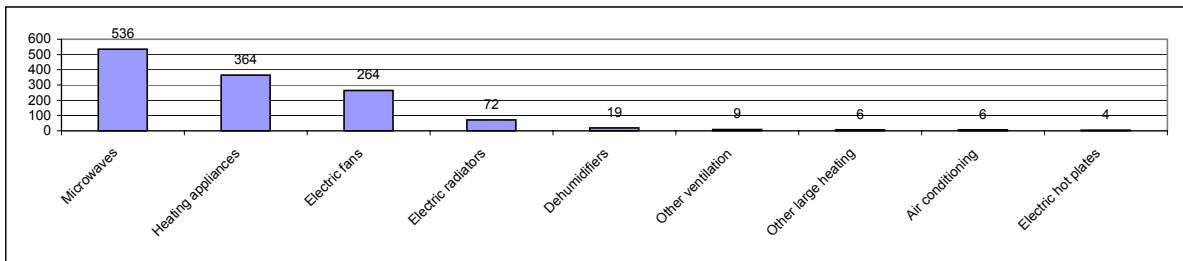
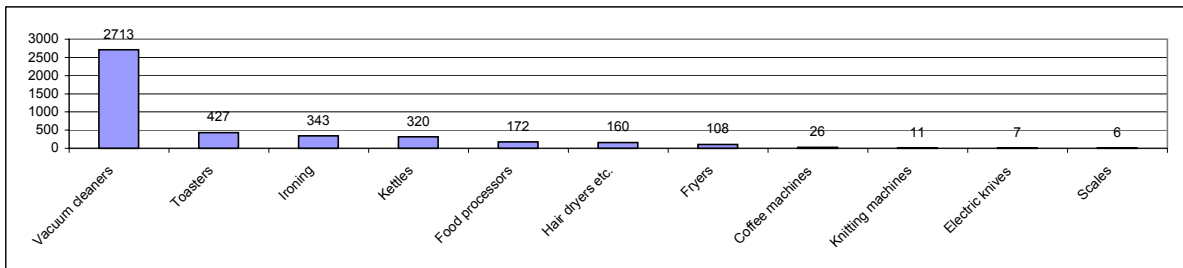
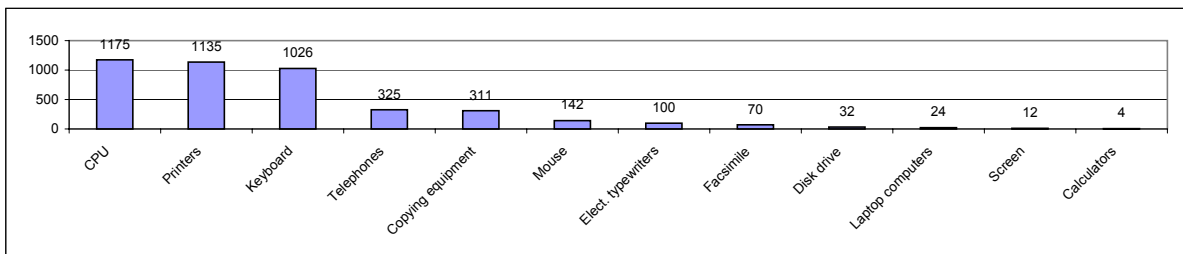
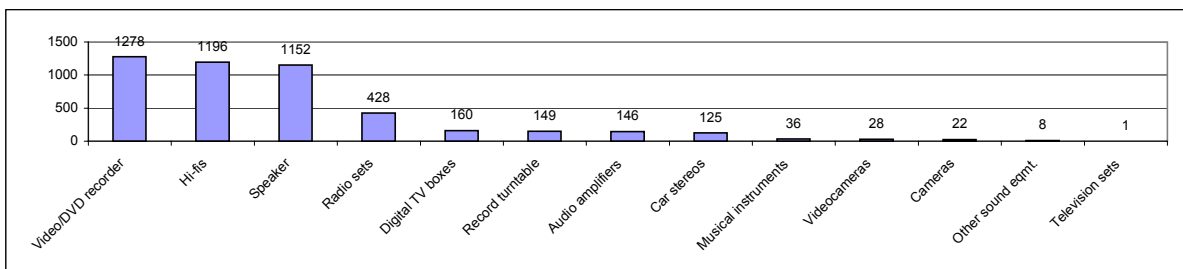
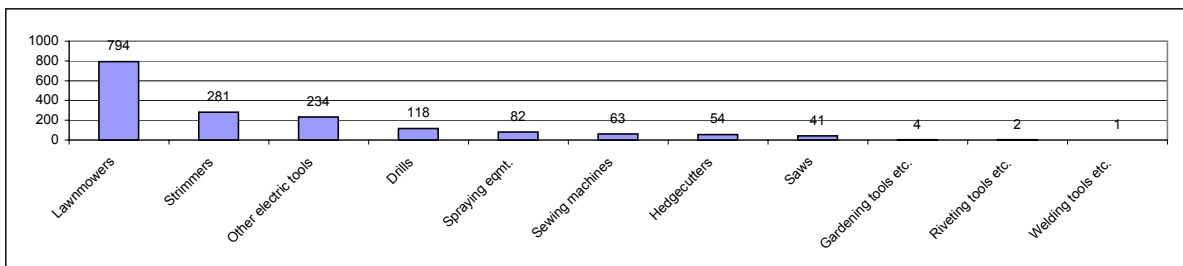
Category	Total Weight (kg)	% of Mixed WEEE	Uncategorised Material	Total Weight (kg)	% of Mixed WEEE
Category 1 Small category 1 items	12892	10.3	Cables and plugs	1677	1.3
Category 2 Small household appliances	24828	19.9	Batteries	166	0.1
Category 3 IT & telecommunications equipment	28323	22.7	Transformers	33	0.0
Category 4 Consumer equipment	27697	22.2	Non WEEE	12357	9.9
Category 5 Lighting equipment	2454	2.0	Unallocated material	756	0.6
Category 6 Electric & electronic goods	12516	10.0			
Category 7 Toys, leisure & sports equipment	414	0.3	Total:	124905	100
Category 9 Monitoring & control instruments	792	0.6			

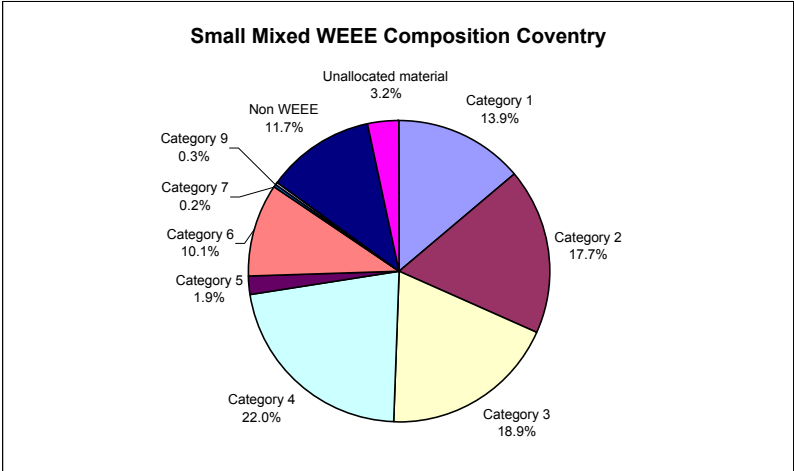
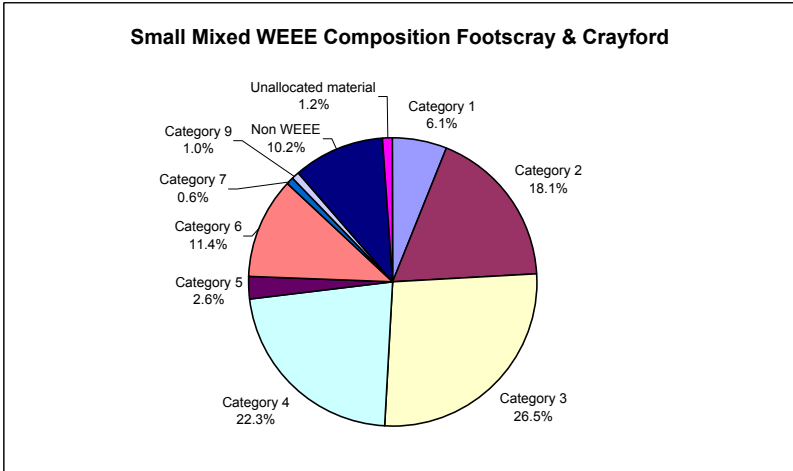
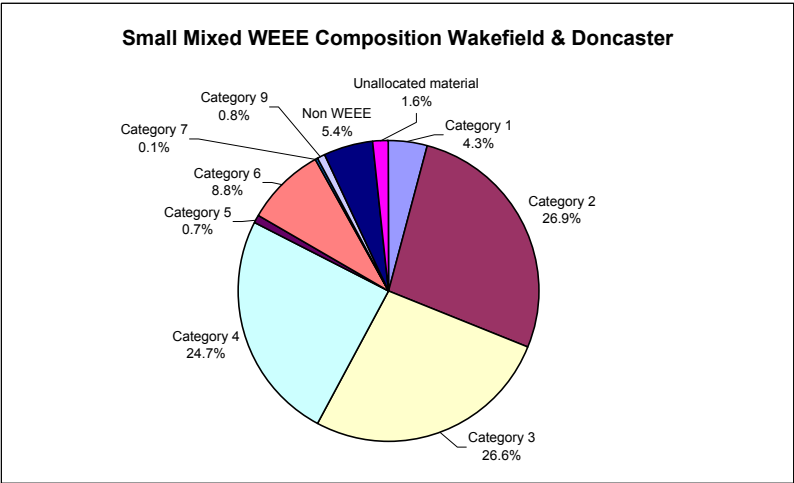
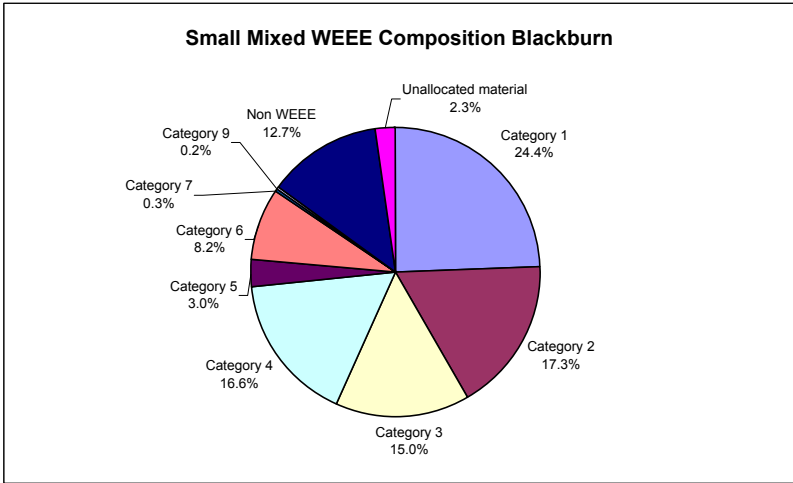
ITEM COUNT					
Category 1 Large household appliances Large cooling appliances Refrigerators Freezers Other large appliances used for refrigeration, conservation and storage of food Washing machines Clothes dryers Dish washing machines Cooking Electric stoves Electric hot plates Microwaves Other large appliances used for cooking and other processing of food Electric heating appliances Electric radiators Other large appliances for heating rooms, beds, seating furniture Electric fans Air conditioner appliances Other fanning, exhaust ventilation & conditioning equipment <i>Dehumidifiers *</i>		Fryers	108	<i>Disk drives *</i>	32
		<i>Kettles *</i>	320	User terminals and systems	
		<i>Food Processors *</i>	172	Facsimile	70
		Grinders, coffee machines and equipment for opening or sealing containers or packages	26	Teleex	
		Electric knives <i>and knife sharpeners</i>	7	Telephones	325
		Appliances for hair-cutting, hair drying, tooth brushing, shaving, massage and other body care applications	160	Pay telephones	
		Clocks, watches and equipment for the purpose of measuring, indicating or registering time		Cordless telephones	
		Scales	6	Cellular telephones	
		Category 3 IT and telecommunications equipment		Answering systems	
		<i>Centralised data processing:</i>		and other products or equipment of transmitting sound, images or other information by telecommunications	
Category 2 Small household appliances Vacuum cleaners Carpet sweepers Other appliances for cleaning Appliances used for sewing, knitting, weaving and other processing for textiles Irons and other appliances for ironing, mangling and other care of clothing Toasters <i>and sandwich toasters *</i>		Category 4 Consumer equipment		Category 4 Consumer equipment	
		Mainframes		Radio sets	428
	4	Minicomputers		Television sets	1
	536	Printer units		Videocameras	28
		<i>Personal computing:</i>		Video recorders <i>and DVD recorders *</i>	1278
	364	Personal computers (CPU, mouse, screen and keyboard included)		Hi-fi recorders <i>and CD players *</i>	1196
	72	<i>CPU *</i>	1175	<i>Car Stereos *</i>	125
	6	<i>Mouse *</i>	142	Audio amplifiers	146
	264	<i>Screen *</i>	12	<i>Speakers *</i>	1152
	6	<i>Keyboard *</i>	1026	<i>Record turntables *</i>	149
Category 6 Electrical and electronic tools (with the exception of large-scale stationary industrial tools) Drills Saws Sewing machines		Laptop computers (CPU, mouse, screen and keyboard included)	24	Musical instruments	36
	19	Notebook computers		And other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound or image than by telecommunications	8
	2713	Notebook computers		<i>Digital TV boxes *</i>	160
		Printers	1135	<i>Cameras *</i>	22
		Copying equipment	311	Category 6 Electrical and electronic tools (with the exception of large-scale stationary industrial tools)	
	11	Electrical and electronic typewriters	100		
		Pocket and desk calculators	4		
	343	and other equipment for the collection, storage processing, presentation or communication of information by electronic means			
	427				
Category 7 Toys, leisure and sports equipment Electric trains or car racing sets Hand-held video game consoles Video games <i>and game consoles *</i> Computers for biking, diving, running, rowing, etc. Sports equipment with electric or electronic components Coin slot machines <i>Toy Cars *</i> <i>Scooters *</i>					
Category 9 Monitoring and control instruments Smoke detector Heating regulators Thermostats Measuring, weighing or adjusting appliances for household or as laboratory equipment Other monitoring and control instruments used in industrial installations (e.g. in control panels)					

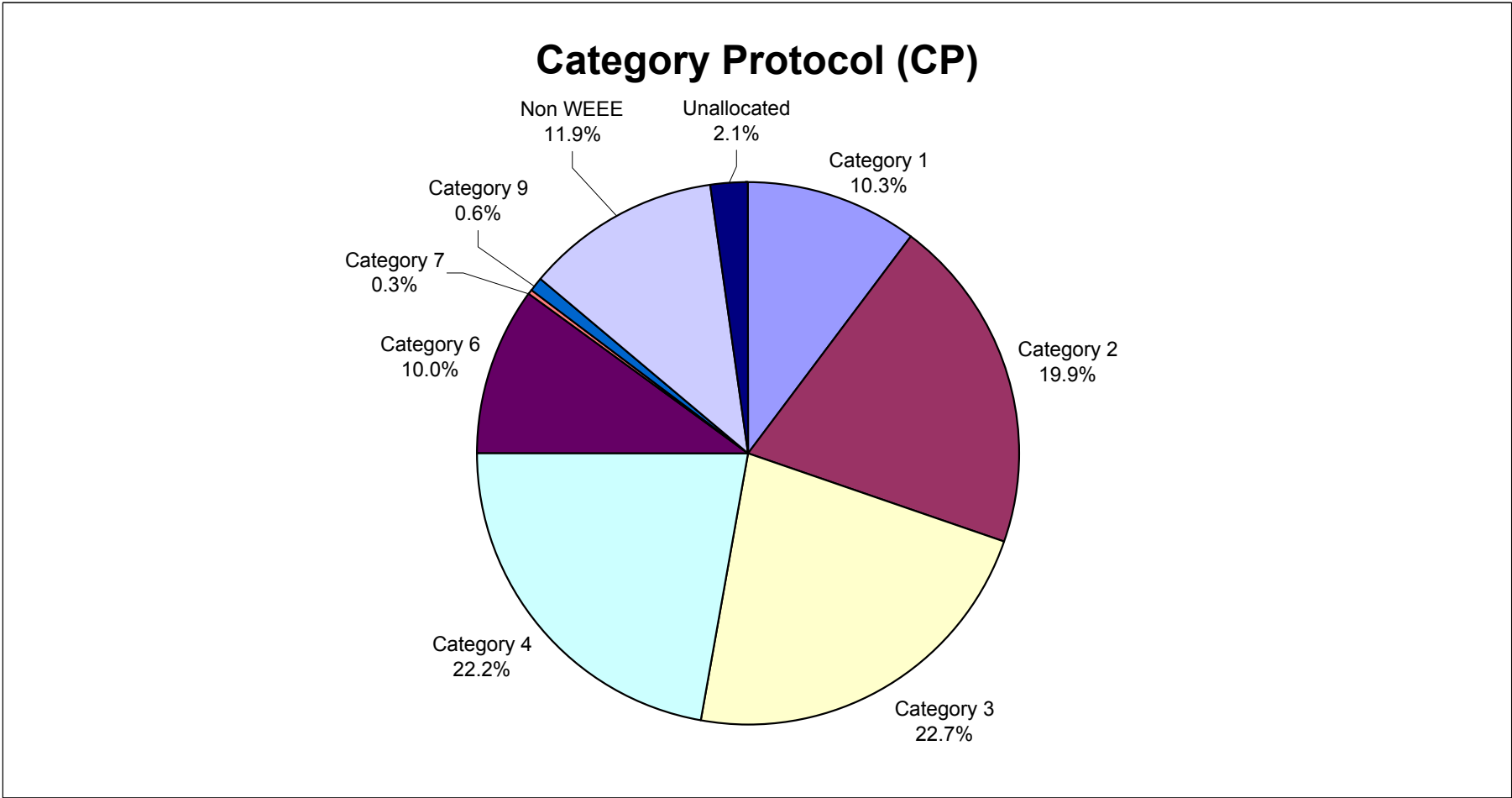
Load Ref. All Load Small WEEE Summary 2	Source of Mixed WEEE All Participating CA Sites	Blaydon Arrival Date n/a	Net Mixed WEEE Tonnage 124.904 tonnes
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ITEM COUNT	Fryers	108	Disk drives *	32	Equipment for turning, milling, sanding, grinding, sawing	234
	Kettles *	320	User terminals and systems		cutting, shearing, drilling, making holes, punching,	
Category 1 Large household appliances	Food Processors *	172	Facsimile	70	folding, bending or similar processing of wood, metal	

Large cooling appliances		20	Telex		and other materials	
Refrigerators			Telephones	325	Tools for riveting, nailing or screwing or removing	2
Freezers		7	Pay telephones		rivets, nails, screws or similar uses	
Other large appliances used for refrigeration, conservation and storage of food		160	Cordless telephones		Tools for welding, soldering or similar use	1
Washing machines			Cellular telephones		Equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means	82
Clothes dryers			Answering systems		Tools for mowing or other gardening activities	4
Dish washing machines			and other products or equipment of transmitting sound, images or other information by telecommunications		<i>Lawnmowers *</i>	794
Cooking		6	Category 4 Consumer equipment		<i>Strimmers *</i>	281
Electric stoves			Radio sets	428	<i>Hedgecutters *</i>	54
Electric hot plates	4		Television sets	1	Category 7 Toys, leisure and sports equipment	
Microwaves	536		Videocameras	28	Electric trains or car racing sets	
Other large appliances used for cooking and other processing of food			Video recorders and DVD recorders *	1278	Hand-held video game consoles	7
Electric heating appliances	364		Hi-fi recorders and CD players *	1196	Video games and game consoles *	10
Electric radiators	72		Car Stereos *	125	Computers for biking, diving, running, rowing, etc.	3
Other large appliances for heating rooms, beds, seating furniture	6		Audio amplifiers	146	Sports equipment with electric or electronic components	
Electric fans	264		<i>Speakers *</i>	1152	Coin slot machines	
Air conditioner appliances	6		<i>Record turntables *</i>	149	<i>Toy Cars *</i>	6
Other fanning, exhaust ventilation & conditioning equipment	9		Musical instruments	36	<i>Scooters *</i>	6
<i>Dehumidifiers *</i>	19		And other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound or image than by telecommunications	8	Category 9 Monitoring and control instruments	
Category 2 Small household appliances			<i>Digital TV boxes *</i>		Smoke detector	1
Vacuum cleaners	2713		<i>Cameras *</i>	160	Heating regulators	
Carpet sweepers			Category 6 Electrical and electronic tools (with the exception of large-scale stationary industrial tools)	22	Thermostats	
Other appliances for cleaning					Measuring, weighing or adjusting appliances for household or as laboratory equipment	
Appliances used for sewing, knitting, weaving and other processing for textiles	11				Other monitoring and control instruments used in industrial installations (e.g. in control panels)	36
Iron and other appliances for ironing, mangling and other care of clothing	343					
Toasters and sandwich toasters *	427					

BLAYDON HAND SORT DATA FOR MIXED WEEE**ITEM COUNT****Category 1 Large household appliances (small white goods only)****Category 2 Small household appliances****Category 3 IT and telecommunications****Category 4 Consumer equipment****Category 6 Electric and electronic goods**





Appendix 2

Processing Data for Mixed WEEE Categories

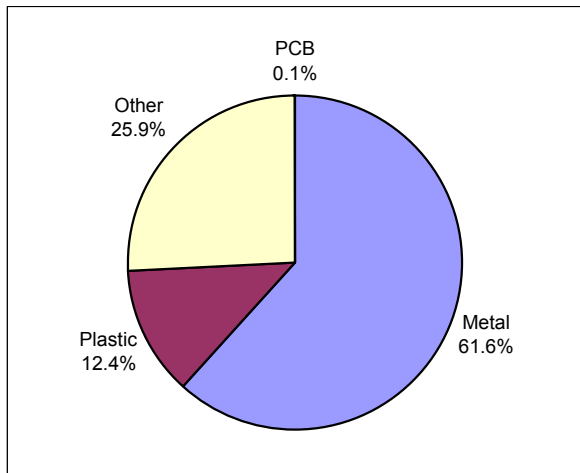
WEEE Processing Trial - Erith
Category 1 - Large White Goods
Category Composition Protocol (CCP)

4th August 2006

Total Sample Infeed ⁽¹⁾	109.01	tonnes
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Large White Goods Composition	tonnes	%
Metal	67.14	61.6
Plastic	13.54	12.4
Other	28.18	25.9
PCB	0.10	0.1
Total	108.96	100

Initial Shred Separation	tonnes	%
Ferrous	59.06	54.2
Shredder Non Ferrous (SNF)	42.80	39.3
Frag Dirt	7.10	6.5
Total Output	108.96	100
Loss in Material	0.05	0.05



Composition of SNF ⁽²⁾	tonnes	%
Ferrous	0.00	0.0
Non Ferrous	6.05	14.1
Plastic ⁽³⁾	13.32	31.1
Rubber ⁽³⁾	3.06	7.2
Wire	1.92	4.5
Foam/fluff	0.27	0.6
Glass	0.81	1.9
Wood	1.88	4.4
Stone	7.73	18.1
PCB	0.10	0.2
Other	0.12	0.3
Fines <2mm ⁽⁴⁾	7.53	17.6
Totals	42.80	100

Composition of Frag Dirt ⁽²⁾	tonnes	%
Ferrous	0.09	1.3
Non Ferrous	0.02	0.2
Plastic ⁽³⁾	0.22	3.1
Rubber ⁽³⁾	0.00	0.0
Wire	0.00	0.0
Foam/fluff	0.07	0.9
Glass	0.00	0.0
Wood	0.07	1.0
Stone	0.00	0.0
PCB	0.00	0.0
Other	6.64	93.5
Fines <2mm ⁽⁴⁾	0.00	0.0
Totals	7.10	100

Notes:

⁽¹⁾ Infeed Sample was composed of an estimated 85% washing machines

⁽²⁾ Composition of SNF and Frag Dirt was calculated from hand sorting a sample of each

⁽³⁾ Rubber and plastic were determined by their physical properties

⁽⁴⁾ Fines were principally composed of concrete dust and fine glass fragments

Metal content is calculated from ferrous, non ferrous and wire

Other content is calculated from rubber, foam/fluff, glass, wood, stone, and undistinguishable fractions of the SNF and frag dirt

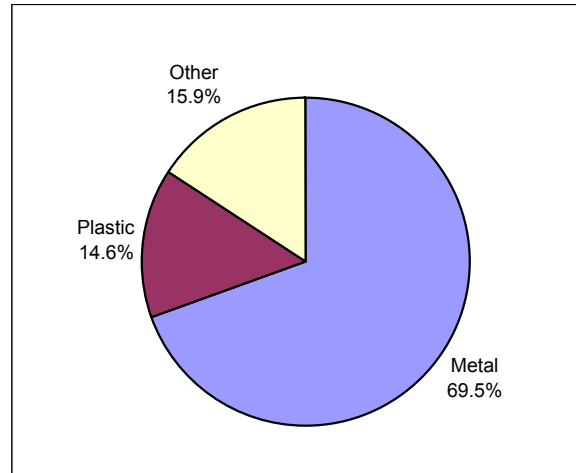
PCB = Printed Circuit Board

Data Obtained from Fridge Processors
Category 1 - Fridges
Category Composition Protocol (CCP)

June 2005 - June 2006

Fridge Composition	kg	%
Metal	35164174	69.5
Plastic	7403212	14.6
Other	8046232	15.9
Total	50613618	100

Data Summary	Total (kg)	Total (%)
Total sample - Units	1437274	
Total sample - Mass	50889618	
Total Ferrous	21667460	42.8
Total non ferrous	2589240	5.1
Compressors	10907474	21.6
Total Plastic	7403212	14.6
Total Foam	6503120	12.8
Other Materials	1543112	3.0
Total	50613618	100
Mass per Unit	35.41	



Data Provided	Operator 1	Operator 2	Operator 3	Operator 4	Operator 5
Total Number of Units	265260	302000	346435	203729	319850
Total Weight of Units (kg)	9422630	12382000	11690080	9066000	8328908
Total Ferrous (kg)	4041720	4705160	5256480	3584000	4080100
Total Non Ferrous (kg)	468260	1114380	379660	256000	370940
Compressors (kg)	2220270	3380286	2543180	1845000	918738
Total Plastic (kg)	1355080	1622042	1596690	1375000	1454400
Total Foam (kg)	1337300	619100	1832990	1209000	1504730
Other Materials (kg)		941032	81080	521000	
Total	9422630	12382000	11690080	8790000	8328908
Mass per Unit	35.52	41.00	33.74	44.50	26.04

Notes:

Summary is based on the data provided by 5 fridge processors for the period June 2005 to June 2006
 Metal content is calculated from ferrous, non ferrous and compressors

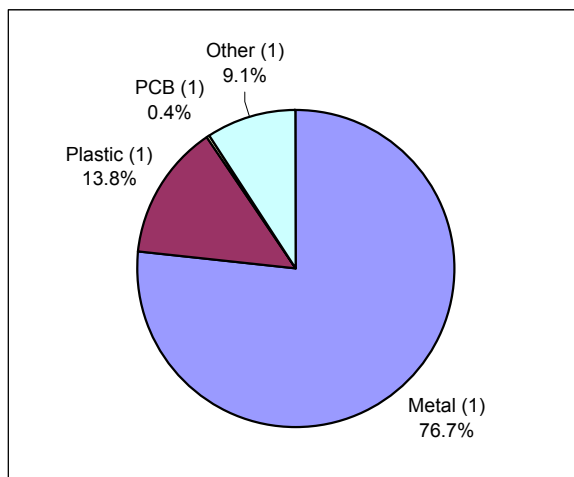
WEEE Processing Trial - Hartlepool
Category 1 - Small White Goods
Category Composition Protocol (CCP)

11th December 2006

Total Sample Infeed	9.20	tonnes
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Small White Goods Composition	tonnes	%
Metal	7.28	80.5
Plastic	1.16	12.8
Other	0.56	6.2
PCB	0.04	0.5
Total	9.05	100

Initial Shred Separation	tonnes	%
Ferrous	6.06	67.0
Shredder Non Ferrous (SNF)	0.87	9.6
Frag Dirt	2.02	22.3
Copper Windings	0.08	0.9
Copper Wire	0.02	0.2
Total Output	9.05	100
Loss in Material	0.15	1.7



Composition of SNF ⁽²⁾	tonnes	%
Ferrous	0.060	6.9
Non Ferrous	0.432	49.7
Rubber ⁽³⁾	0.014	1.6
Wood	0.007	0.8
Wire	0.140	16.0
Plastic ⁽³⁾	0.095	10.9
Film/Paper	0.000	0.0
Stone	0.001	0.1
Foam	0.002	0.2
PCB	0.013	1.5
Glass	0.009	1.1
Appliance Cable	0.090	10.4
Fines <2mm ⁽⁴⁾	0.007	0.8
Total	0.87	100

Composition of Frag Dirt ⁽²⁾	tonnes	%
Ferrous	0.04	2.1
Non Ferrous	0.07	3.6
Rubber ⁽³⁾	0.03	1.7
Wood	0.06	2.9
Wire	0.38	18.8
Plastic ⁽³⁾	1.06	52.6
Film/Paper	0.03	1.6
Foam/Carpet/Fabric	0.03	1.7
Polystyrene	0.00	0.1
PCB	0.03	1.5
Glass	0.01	0.4
Fluff	0.05	2.6
Fines 2-6mm	0.14	6.9
Fines <2mm ⁽⁴⁾	0.07	3.5
Total	2.02	100

Notes:⁽¹⁾ Taking into account composition of associated WEEE residue⁽²⁾ Composition of SNF and Frag Dirt was calculated from hand sorting a sample of each⁽³⁾ Rubber and plastic were determined by their physical properties⁽⁴⁾ Fines were principally composed of concrete dust and fine glass fragments

Metal content is calculated from ferrous, non ferrous, copper windings, copper wire and wire from the SNF and frag dirt

Other content is calculated from cable, conveyor dust, rubbish, batteries, capacitors, wood and rubber

PCB = Printed Circuit Board

Estimated item content of sample infeed

Electric hot plates	3	Electric fans	187
Microwaves	381	Air conditioner appliances	4
Electric heating appliances	258	Other fanning, exhaust ventilation & conditioning equipment	6
Electric radiators	51		
Other large appliances for heating rooms, beds, seating furniture	4	<i>Dehumidifiers *</i>	13

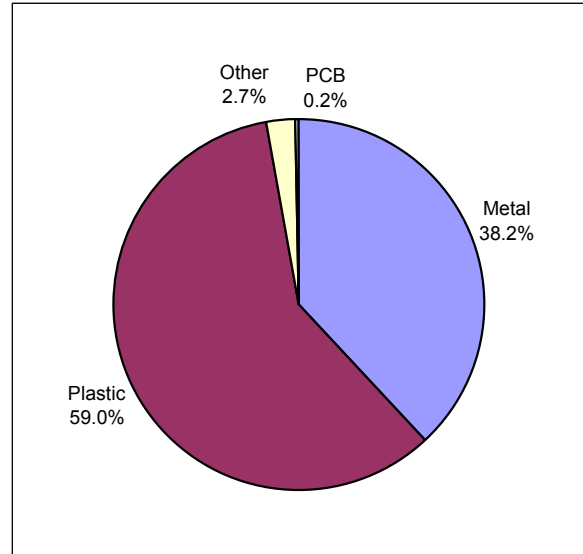
**WEEE Processing Trial - Wincanton
Category 2 Small Household Appliances
Category Composition Protocol (CCP)**

3rd January 2007

Total Sample Infeed	16320	kg
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Category 2 Composition	kg	%
Metal	6839.50	41.6
Plastic	9104.19	55.3
Other	483.98	2.9
PCB	29.34	0.2
Total	16457.00	100

Initial Shred Separation	kg	%
Ferrous	2740	16.6
Non Ferrous	999	6.1
Plastic	9300	56.5
Motors	2980	18.1
PCB	15	0.1
Cable	116	0.7
Wire	120.5	0.7
Conveyor Dust	120	0.7
Other Material ⁽²⁾	51	0.3
Batteries	6	0.0
Capacitors	9.5	0.1
Total Output	16457	100
Gain in Material	137	0.8



Composition of Plastic Stream	kg	%
Plastic	9104.19	97.9
Wood	27.57	0.3
Rubber	153.91	1.7
PCB	14.34	0.2
Totals	9300.00	100

Category 2 Composition ⁽¹⁾	%
Metal	38.2
Plastic	59.0
Other	2.7
PCB	0.2
Total	100

Notes:

Metal content is calculated from ferrous, non ferrous, motors and wire

Other content is calculated from cable, conveyor dust, rubbish, batteries, capacitors, wood and rubber

PCB = Printed Circuit Board

⁽¹⁾ Taking into account composition of associated WEEE residue

⁽²⁾ Consists of fabric, foam, cardboard and wadding

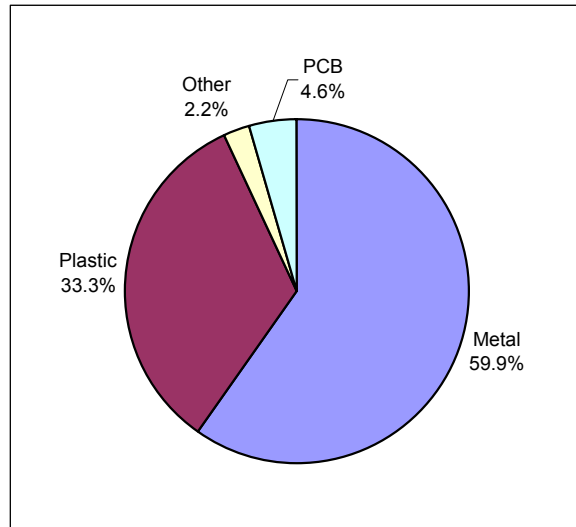
WEEE Processing Trial - Wincanton
Category 3 IT and Telecommunications Equipment
Category Composition Protocol (CCP)

8th January 2007

Total Sample Infeed	17780	kg
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Category 3 Composition	kg	%
Metal	11770.92	65.2
Plastic	5071.75	28.1
Other	471.00	2.6
PCB	750.83	4.2
Total	18064.50	100

Initial Shred Separation	kg	%
Ferrous	10640	58.9
Non Ferrous	740	4.1
Plastic	5280	29.2
Motors	352.5	2.0
PCB	581	3.2
Cable	185.5	1.0
Conveyor Dust	206.5	1.1
Other Material ⁽²⁾	40	0.2
Batteries	16.5	0.1
Capacitors	22.5	0.1
Total Output	18065	100
Gain in Material	285	1.6



Composition of Plastic Stream	kg	%
Plastic	5071.75	96.1
Metal	38.42	0.7
PCB	169.83	3.2
Totals	5280.00	100

Category 3 Composition ⁽¹⁾	%
Metal	59.9
Plastic	33.3
Other	2.2
PCB	4.6
Total	100

Notes:

Metal content is calculated from ferrous, non ferrous, motors, and metal within the plastic stream

Other content is calculated from cable, conveyor dust, rubbish, batteries and capacitors

PCB = Printed Circuit Board

⁽¹⁾ Taking into account composition of associated WEEE residue

⁽²⁾ Consists of fabric, foam, cardboard and wadding

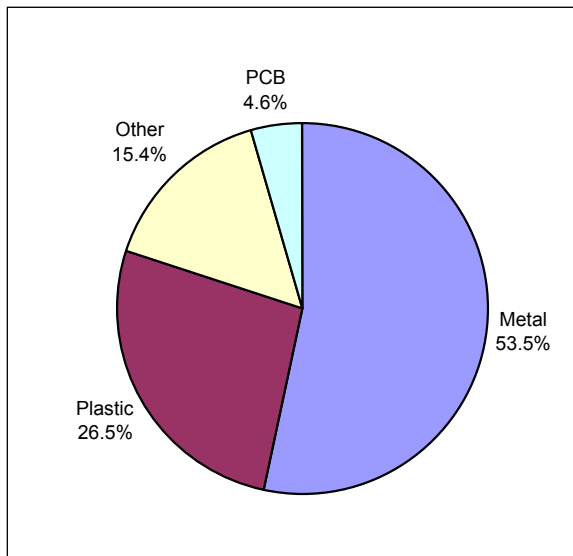
**WEEE Processing Trial - Wincanton
Category 4 Consumer Equipment
Category Composition Protocol (CCP)**

9th January 2007

Total Sample Infeed	19200	kg
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Category 4 Composition	kg	%
Metal	12192.11	61.4
Plastic	4641.84	23.4
Other	2077.06	10.5
PCB	929.99	4.7
Total	19841.00	100

Initial Shred Separation	kg	%
Ferrous	7950	40.1
Non Ferrous	2760	13.9
Plastic	6720	33.9
Motors	1388.5	7.0
PCB	421	2.1
Cable	19	0.1
Wood	321.5	1.6
Conveyor Dust	206	1.0
Other Material ⁽²⁾	45	0.2
Batteries	5	0.0
Capacitors	7.0	0.0
Total Output	19841	100
Gain in Material	641	3.3



Composition of Plastic Stream	kg	%
Plastic	4641.8	69.1
Wood	1475.1	22.0
Wire	93.6	1.4
PCB	509.5	7.6
Totals	6720.00	100

Category 4 Composition ⁽¹⁾	%
Metal	53.5
Plastic	26.5
Other	15.4
PCB	4.6
Total	100

Notes:

Metal content is calculated from ferrous, non ferrous, motors, and wire

Other content is calculated from cable, wood, conveyor dust, rubbish, batteries and capacitors

PCB = Printed Circuit Board

⁽¹⁾ Taking into account composition of associated WEEE residue

⁽²⁾ Consists of fabric, foam, cardboard and wadding

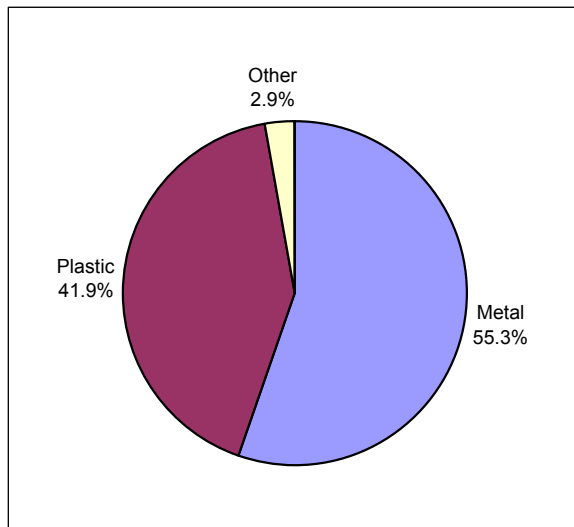
WEEE Processing Trial - Wincanton
Category 6 Electric and Electronic Goods
Category Composition Protocol (CCP)

5th January 2007

Total Sample Infeed	10280	kg
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Category 6 Composition	kg	%
Metal	6137.00	60.6
Plastic	3647.63	36.0
Other	339.37	3.4
PCB ⁽¹⁾	0.00	0.0
Total	10124.00	100

Initial Shred Separation	kg	%
Ferrous	2790	27.6
Non Ferrous	440	4.3
Plastic	3660	36.2
Motors	2907	28.7
PCB	0	0.0
Cable	170.5	1.7
Conveyor Dust	107.5	1.1
Other Material ⁽²⁾	33	0.3
Batteries	8	0.1
Capacitors	8	0.1
Total Output	10124	100
Loss in Material	156	1.52



Composition of Plastic Stream	kg	%
Plastic	3647.63	99.7
Rubber	12.37	0.3
Totals	3660.00	100

Category 6 Composition ⁽¹⁾	%
Metal	55.3
Plastic	41.9
Other	2.9
PCB	0.0
Total	100

Notes:

Metal content is calculated from ferrous, non ferrous and motors

Other content is calculated from cable, conveyor dust, rubbish, batteries, capacitors and rubber

PCB = Printed Circuit Board

⁽¹⁾ Taking into account composition of associated WEEE residue

⁽²⁾ Consists of fabric, foam, cardboard and wadding

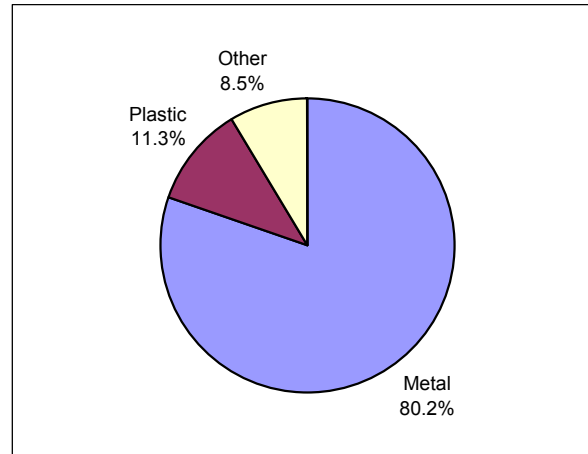
Estimation of Category Composition

Categories 5, 7, 9 Lighting ,Toys, Leisure & Sports, Monitoring & Control

Category Composition Protocol (CCP)

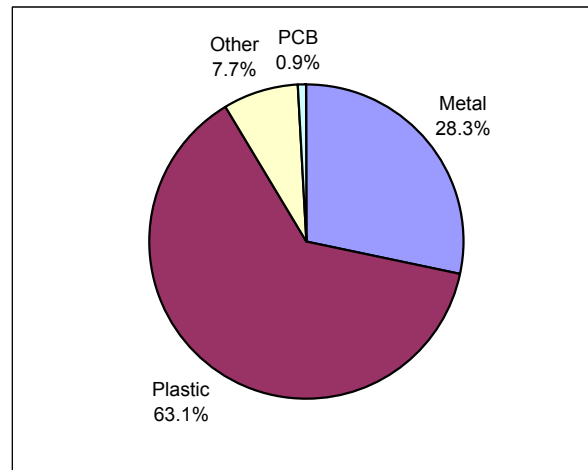
Category 5 Composition	kg	%
Metal	80.00	80.0
Plastic	10.00	10.0
Other	10.00	10.0
PCB	0.00	0.0
Total	100.00	100

Category 5 Composition ⁽¹⁾	%
Metal	80.2
Plastic	11.3
Other	8.5
PCB	0.0
Total	100

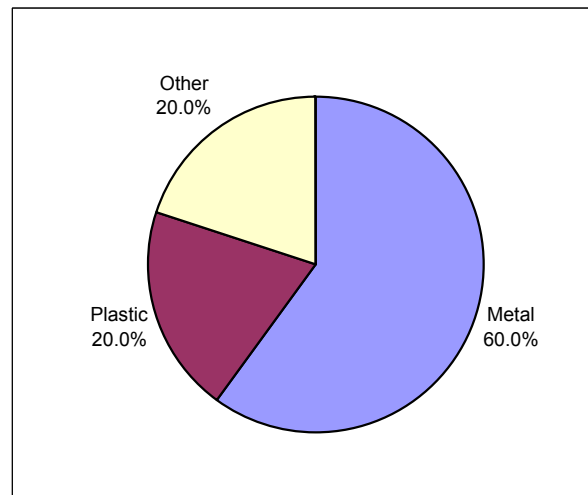


Category 7 Composition	kg	%
Metal	30.00	30.0
Plastic	60.00	60.0
Other	9.00	9.0
PCB	1.00	1.0
Total	100.00	100

Category 7 Composition ⁽¹⁾	%
Metal	28.3
Plastic	63.1
Other	7.7
PCB	0.9
Total	100



Category 9 Composition	kg	%
Metal	60.00	60.0
Plastic	20.00	20.0
Other	20.00	20.0
PCB	0.00	0.0
Total	100.00	100



Notes:

Due to insufficient material collected from these categories, an estimate of the their typical composition has been made
PCB = Printed circuit board

⁽¹⁾ Taking into account composition of associated WEEE residue

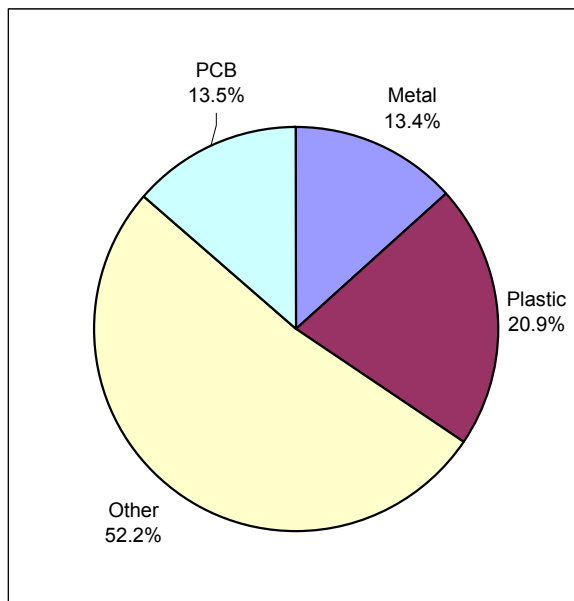
WEEE Processing Trial - Bakers
Category 3 - IT Cathode Ray Tubes
Category Composition Protocol (CCP)

October 2006

Total Sample Infeed	1287.50	tonnes
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Small White Goods Composition	kg	%
Metal	177.88	13.4
Plastic	277.25	20.9
Other	692.42	52.2
PCB	179.00	13.5
Total	1326.55	100.00

Initial Shred Separation	kg	%
Total Sample - Units	100	
Total Sample - Mass	1287.50	
Total Ferrous	115.50	8.7
Total Non Ferrous	31.00	2.3
Total Plastic	265.07	20.0
Other Material	53.98	4.1
PCB	179	13.5
Funnel Glass	269.00	20.3
Panel Glass	342	25.8
Total Glass	611.00	46.1
Yolks	71.00	5.4
Total	1326.55	100.00
Mass per unit	12.875	



Composition of Yolks⁽¹⁾	kg	%
Plastic	12.18	17.2
Copper	29.34	41.3
Yolk	27.44	38.7
Metals	2.04	2.9
Total	71.00	100.00

Notes:

⁽¹⁾ Composition of yolks was calculated from dismantling a representative selection

Metal content is calculated from ferrous, non ferrous, and copper and other metals contained within the yolk

Other content is calculated from funnel glass, panel glass, yolks and other material

PCB = Printed Circuit Board

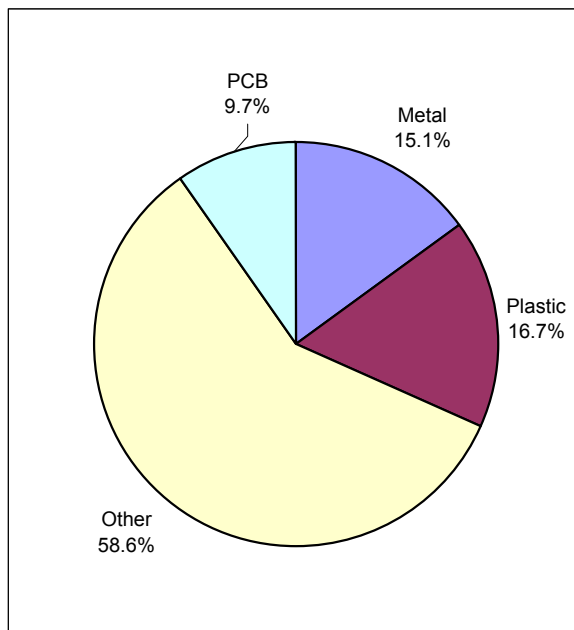
WEEE Processing Trial - Bakers
Category 4 - Television Cathode Ray Tubes
Category Composition Protocol (CCP)

October 2006

Total Sample Infeed	1700.00	tonnes
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Small White Goods Composition	kg	%
Metal	270.31	15.1
Plastic	298.17	16.7
Other	1048.02	58.6
PCB	173.00	9.7
Total	1789.50	100

Initial Shred Separation	kg	%
Total Sample - Units	100	
Total Sample - Mass	1700.00	
Total Ferrous	157.50	8.8
Total Non Ferrous	86.00	4.8
Total Plastic	289.00	16.1
Other Material	12.00	0.7
Wood/Chipboard	104.00	5.8
PCB	173.00	9.7
Funnel Glass	379.00	21.2
Screen Glass	532.00	29.7
Total Glass	911.00	50.9
Yolks	57.00	3.2
Total	1789.50	100
Mass per unit	17.00	



Composition of Yolks ⁽¹⁾	kg	%
Plastic	9.17	16.1
Copper	22.37	39.3
Yolk	21.02	36.9
Metals	4.44	7.8
Total	57.00	100

Notes:

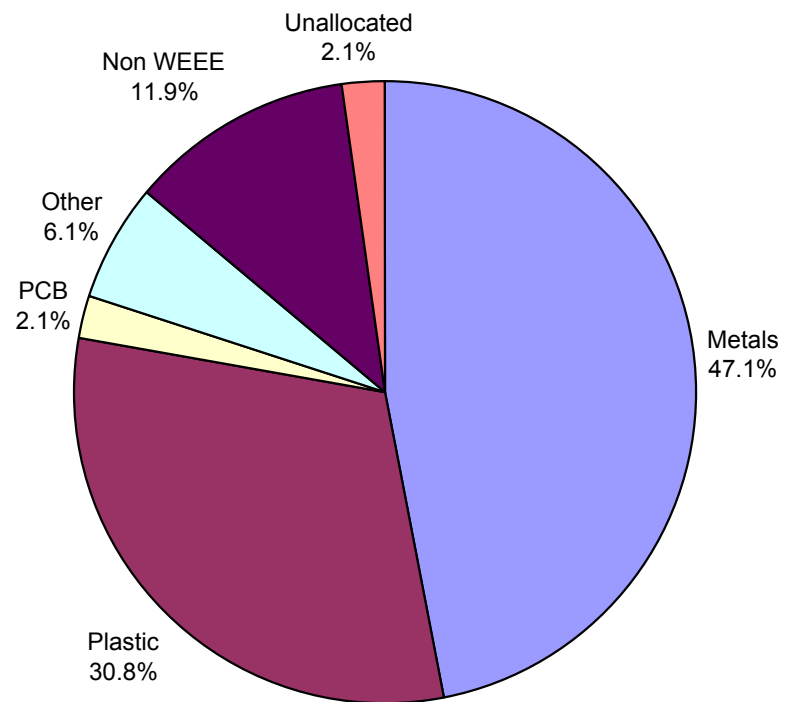
⁽¹⁾ Composition of yolks was calculated from dismantling a representative selection

Metal content is calculated from ferrous, non ferrous, and copper and other metals contained within the yolk

Other content is calculated from wood/chipboard, funnel glass, screen glass, yolks and other material

PCB = Printed Circuit Board

Small Mixed WEEE Composition Protocol (SCP)



Appendix 3

Recycling Calculation & Evidence System for Small Mixed WEEE Processing

Flow	Activity	Materials	Measurement Comments													
Designated Collection Facility	Collection	Small mixed WEEE collected	Number of loads removed from DCF													
Approved Authorised Treatment Facility	Determination of input	Input weight of small mixed WEEE in period for AATF Non-WEEE including cat 5 and unallocated	100 tonnes 14 tonnes	Weight of as delivered small mixed WEEE recorded by AATF. Non-WEEE provided by protocol												
		WEEE input	86 tonnes													
		WEEE category	1		2	3	4	5	6	7	8	9	10	Total		
		Collection Mix %	10.3%		19.9%	22.7%	22.2%		10.0%	0.3%		0.6%			86%	Category Protocol
		Metal content %	80.5%		38.2%	59.9%	53.5%		55.3%	28.3%		60.0%				Category Composition Protocols
		Plastic content %	12.8%		59.0%	33.3%	26.5%		41.9%	63.1%		20.0%				
		Other content %	6.2%		2.7%	2.2%	15.4%		2.9%	7.7%		20.0%				
		PCB content %	0.5%		0.2%	4.6%	4.6%			0.9%		0.0%				
		Total material %	100%		100%	100%	100%		100%	100%		100%				
		Collection Mix t	10.3		19.9	22.7	22.2		10	0.3		0.6			86	Calculated from Protocol Composition Values. Actual recovery values to be compared to these.
		Metal content t	8.3		7.6	13.6	11.9		5.5	0.08		0.36			47	
		Plastic content t	1.3		11.7	7.6	5.9		4.2	0.19		0.12			31	
	Other content t	0.6	0.5	0.5	3.4		0.3	0.02		0.12			6			
	PCB content t	0.0	0.0	1.0	1.0		0.0	0.00		0			2			
	Total material t	10.30	19.90	22.70	22.20		10.00	0.30		0.60			86.00			
	Determination of material streams separated at AATF		AATF material separation/recovery efficiency %	Material input (t)	Material separated (t)	Material not separated (t)								Materials separated by AATF and received for reprocessing/export		
		Metal		100%	47	47	0									
		Plastic		58%	31	18	13									
		Other		80%	6	4	1									
		PCB		0%	2	0	2									
Calculation materials received for recycling/export WEEE category		Total	86	70	16	81% separated for recycling										
	WEEE category	1	2	3	4	5	6	7	8	9	10	Total				
	Metal recycling (t)	8	8	14	12		5.5	0.1		0.4			47			
	Plastic recycling (t)	1	7	4	3		2.4	0.1		0.1			18			
	Other recycling (t)	1	0	0	3		0.2	0.0		0.1			4			
	PCB recycling (t)	0	0	0	0		0.0	0.0		0.0			0			
	Total material (t)	10	15	18	18		8	0		1			70			
Recycling rate	93%	75%	81%	81%		82%	71%		88%			81%	Calculated from protocol content, and composition of category.			
Reprocessor/ Exporter	Evidence of recycling	Target	80%/75%	70%/50%	75%/65%	75%/65%		70%/50%	70%/50%		70%/50%	80%/75%	Target Recycling Recovery Values			
		Material recycled/covered (t)	Materials disposed of (t)											Appropriate evidence to be provided by reprocessor/exporter to show this tonnage has been received		
Metal	47															
Plastic	18															
Other	4															
PCB	0															
Disposed of	30															
		Total	70													

Appendix 4

Photographs



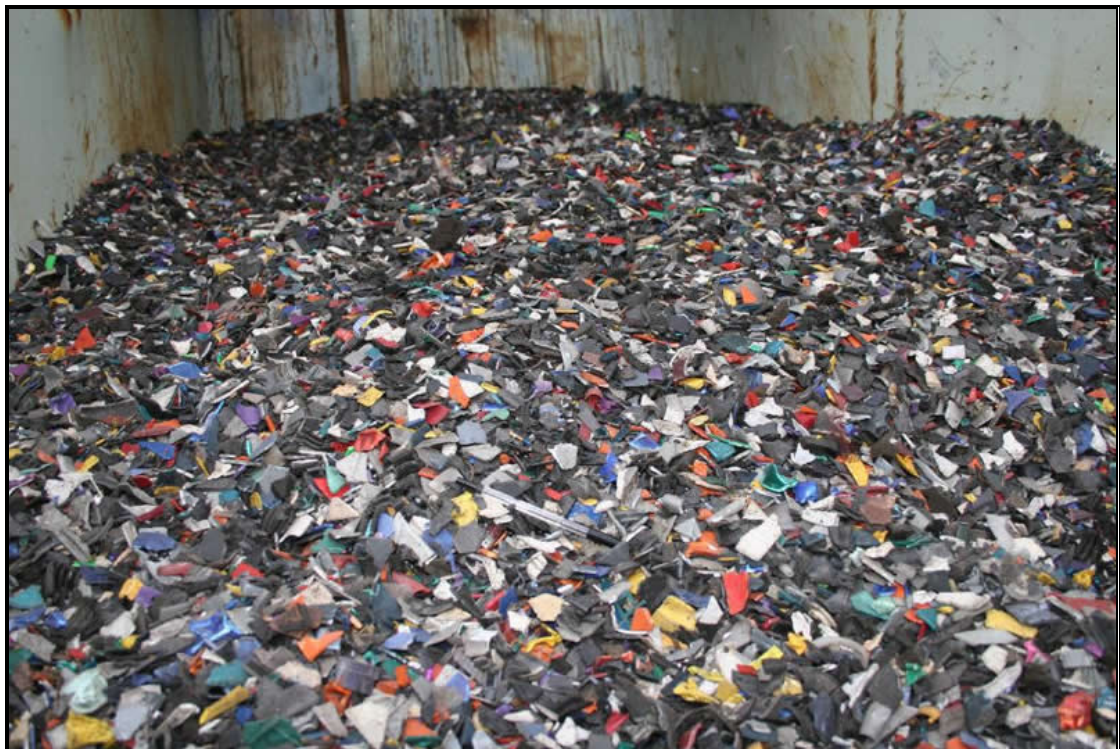
Picture 1 : 109 Tonne sample of large category 1 items. Sample dominated by washing machines



Picture 2 : 109 Tonne sample of large category 1 items. Loading in to shredder.



Picture 3 : 16.3 tonnes of category 2 materials to be processed. Dominated by vacuum cleaners.



Picture 4 : Category 2 plastic dominated output. Representative samples were taken for handsorting to determine composition. A pen was placed in the middle foreground for scale.



Picture 5 : Category 2 'non-ferrous' (including some stainless steel) output. Vacuum cleaner pipes, toaster/grill plates and kettles were present.



Picture 6 : 17.7 tonne sample of Category 3 IT and Telecommunications Equipment to be processed.



Picture 7 : Category 3 plastic dominated output. Representative samples were taken for handsorting to determine composition. The output was dominated by grey and black plastics.



Picture 8 : Category 3 Ferrous output. This included PC and printer, cases and chassis.



Picture 9 : Category 3 Printed Circuit Board (PCB). This is one of three bins. Some PCB fragments were also found during the hand sort of other outputs.



Picture 10 : 19.2 tonne sample of category 4 Consumer Equipment.



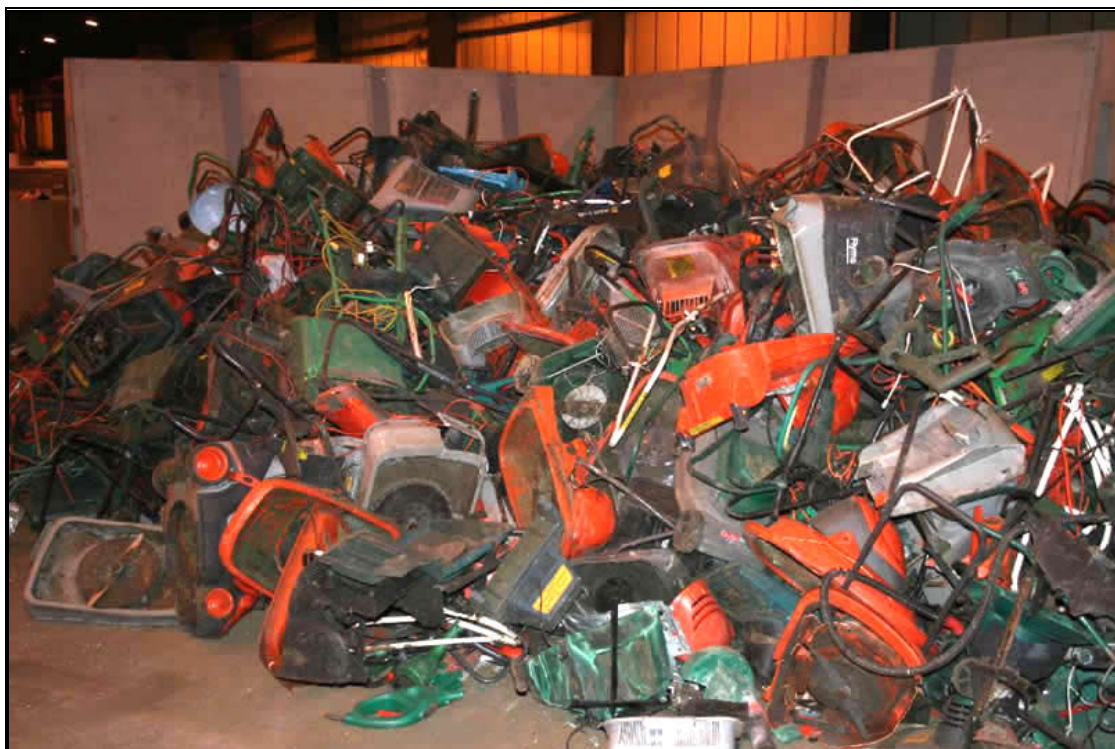
Picture 11 : Category 4 Plastic rich output. Representative samples of this material were taken to handsort. There was a significant wood component to this material.



Picture 12 : Category 4 Non ferrous output. Other non ferrous materials appeared within a granulated output.



Picture 13 : Category 4 Segregated wood and chip board materials. Derived principally from speaker and stereo cases.



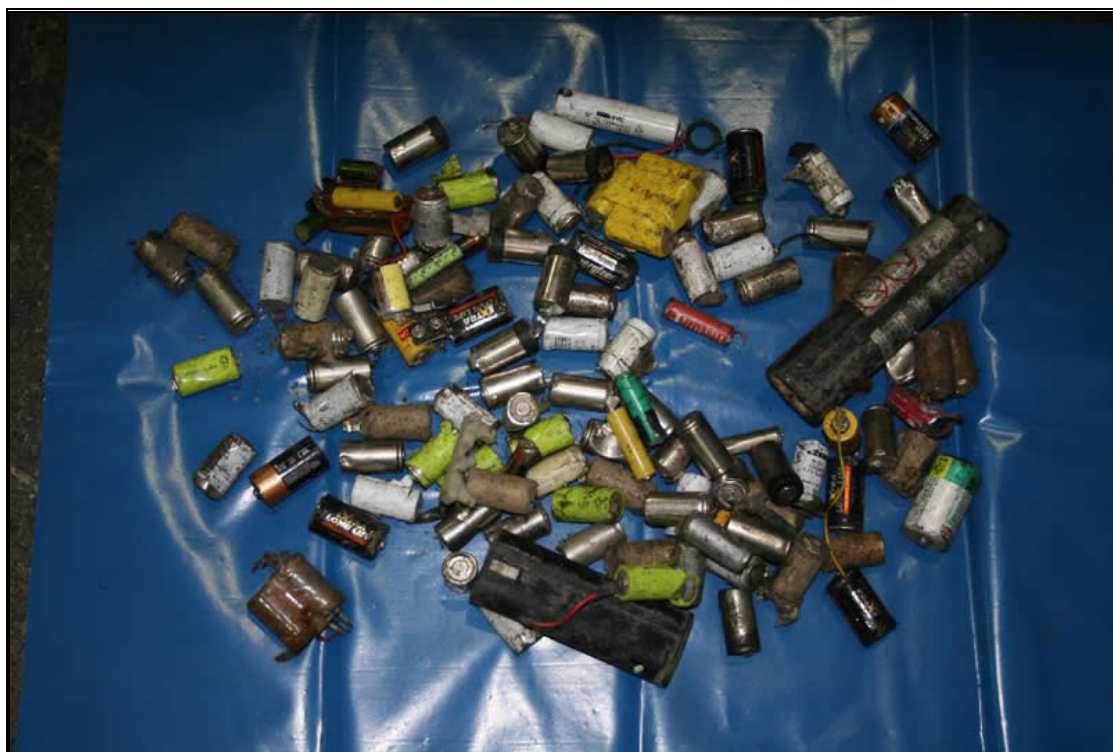
Picture 14 : 10.2 tonne sample of Category 6 Electrical and electronic goods. Sample displayed a dominance of lawn mowers.



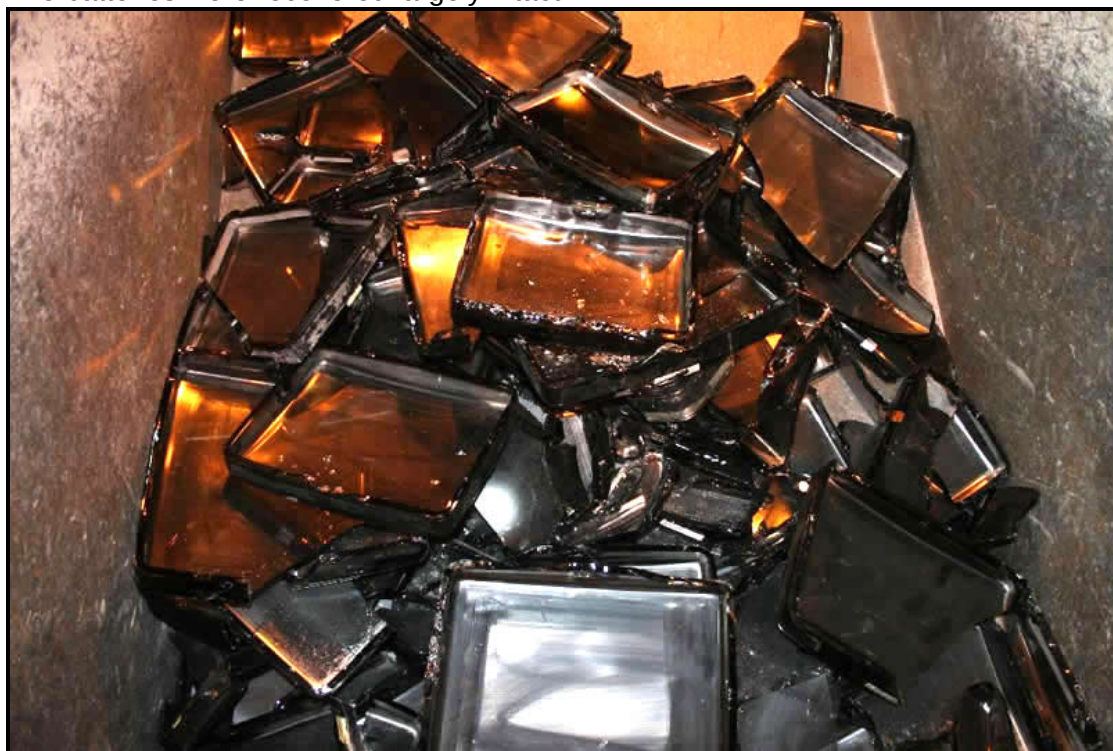
Picture 15 : Category 6 motors made a significant contribution the overall metal content for this category.



Picture 16 : Category 6 Ferrous. The majority of this fraction was made up of handles, metal body panels and other non motor components.



Picture 17 : Category 6. These batteries were collected from the processing of Category 6. Some cells remained within their 'battery packs' others were separated. The batteries were recovered largely intact.



Picture 18 : CRT dismantling. Skip of panel glass hand dismantled to ensure no sinter contaminated this fraction. Each panel was vacuum cleaned to remove interior powder coating.



Picture 19 : CRT Dismantling. Yolks collected from category 3 PC Monitors. Samples of these were collected and hand dismantled to determine composition.



Picture 20 : Category 1 small household appliances. This is the Ferrous product (3a-3b) from shredding 9.2 tonnes of small category 1 items, including microwaves, heaters and fans.



Picture 21 : Category 1 small household appliances. This is the 'frag dirt' (near centre), and shredder non ferrous (rear right), from shredding 9.2 tonnes of small category 1 items, including microwaves, heaters and fans. These materials were sampled. The representative samples were then handsorted to determine metal, plastic and other material content.